

[illegible]

# SERVICE MANUAL

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**Model:**

**PDP4273M  
N**





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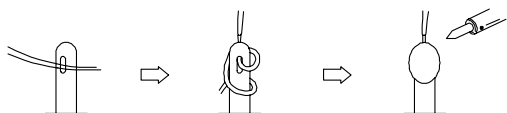
This manual is the latest at the time of printing, and does not include the modification which may be made after the printing, by the constant improvement of product.

# Safety Precaution

 <div><b>CAUTION</b> <b>RISK OF ELECTRIC SHOCK</b> <b>DO NOT OPEN</b></div> 	 <p>The lightning flash with arrowhead symbol, within an equilateral triangle, is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.</p>
<p><b>CAUTION: TO REDUCE THE RISK OF ELECTRIC SHOCK, DO NOT REMOVE COVER (OR BACK). NO USER-SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL ONLY.</b></p>	 <p>The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.</p>

## PRECAUTIONS DURING SERVICING

1. In addition to safety, other parts and assemblies are specified for conformance with such regulations as those applying to spurious radiation. These must also be replaced only with specified replacements.  
Examples: RF converters, tuner units, antenna selection switches, RF cables, noise-blocking capacitors, noise-blocking filters, etc.
2. Use specified internal Wiring. Note especially:
  - 1) Wires covered with PVC tubing
  - 2) Double insulated wires
  - 3) High voltage leads
3. Use specified insulating materials for hazardous live parts. Note especially:
  - 1) Insulating Tape
  - 2) PVC tubing
  - 3) Spacers (insulating barriers)
  - 4) Insulating sheets for transistors
  - 5) Plastic screws for fixing micro switches
4. When replacing AC primary side components (transformers, power cords, noise blocking capacitors, etc.), wrap ends of wires securely about the terminals before soldering.



5. Make sure that wires do not contact heat generating parts (heat sinks, oxide metal film resistors, fusible resistors, etc.)
6. Check if replaced wires do not contact sharply edged or pointed parts.
7. Make sure that foreign objects (screws, solder droplets, etc.) do not remain inside the set.

## MAKE YOUR CONTRIBUTION TO PROTECT THE ENVIRONMENT

Used batteries with the ISO symbol



for recycling as well as small accumulators (rechargeable batteries), mini-batteries (cells) and starter batteries should not be thrown into the garbage can.

Please leave them at an appropriate depot.

### WARNING:

Before servicing this TV receiver, read the **SAFETY INSTRUCTION** and **PRODUCT SAFETY NOTICE**.

## SAFETY INSTRUCTION

The service should not be attempted by anyone unfamiliar with the necessary instructions on this apparatus. The following are the necessary instructions to be observed before servicing.

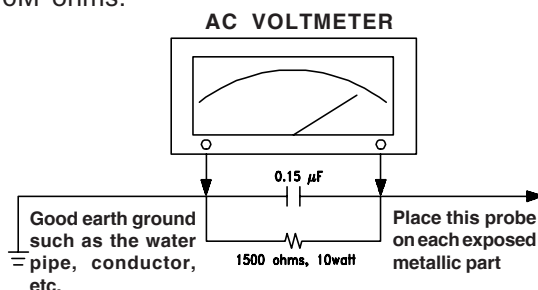
1. An isolation transformer should be connected in the power line between the receiver and the AC line when a service is performed on the primary of the converter transformer of the set.
2. Comply with all caution and safety related provided on the back of the cabinet, inside the cabinet, on the chassis or picture tube.
3. To avoid a shock hazard, always discharge the picture tube's anode to the chassis ground before removing the anode cap.
4. Completely discharge the high potential voltage of the picture tube before handling. The picture tube is a vacuum and if broken, the glass will explode.

5. When replacing a MAIN PCB in the cabinet, always be certain that all protective are installed properly such as control knobs, adjustment covers or shields, barriers, isolation resistor networks etc.
6. When servicing is required, observe the original lead dressing. Extra precaution should be given to assure correct lead dressing in the high voltage area.
7. Keep wires away from high voltage or high temperature components.
8. Before returning the set to the customer, always perform an AC leakage current check on the exposed metallic parts of the cabinet, such as antennas, terminals, screwheads, metal overlay, control shafts, etc., to be sure the set is safe to operate without danger of electrical shock. Plug the AC line cord directly to the AC outlet (do not use a line isolation transformer during this check). Use an AC voltmeter having 5K ohms volt sensitivity or more in the following manner.  
Connect a 1.5K ohm 10 watt resistor paralleled by a 0.15 $\mu$ F AC type capacitor, between a good earth ground (water pipe, conductor etc.,) and the exposed metallic parts, one at a time. Measure the AC voltage across the combination of the 1.5K ohm resistor and 0.15  $\mu$ F capacitor. Reverse the AC plug at the AC outlet and repeat the AC voltage measurements for each exposed metallic part.

The measured voltage must not exceed 0.3V RMS.

This corresponds to 0.5mA AC. Any value exceeding this limit constitutes a potential shock hazard and must be corrected immediately.

The resistance measurement should be done between accessible exposed metal parts and power cord plug prongs with the power switch "ON". The resistance should be more than 6M ohms.



**AC Leakage Current Check**

## PRODUCT SAFETY NOTICE

Many electrical and mechanical parts in this apparatus have special safety-related characteristics.

These characteristics are offered passed unnoticed by visual inspection and the protection afforded by them cannot necessarily be obtained by using replacement components rated for a higher voltage, wattage, etc.

The replacement parts which have these special safety characteristics are identified by  $\triangle$  marks on the schematic diagram and on the parts list.

Before replacing any of these components, read the parts list in this manual carefully. The use of substitute replacement parts which do not have the same safety characteristics as specified in the parts list may create shock, fire, or other hazards.

9. Must be sure that the ground wire of the AC inlet is connected with the ground of the apparatus properly.

## 1. Standard Test Conditions

All tests shall be performed under the following conditions, unless otherwise specified.

- 1.1 Ambient light : 150ux (When measuring  $I_B$ , the ambient luminance  $\leq 0.1 \text{Cd/m}^2$ )
- 1.2 Viewing distance : 50cm in front of PDP
- 1.3 Warm up time : 30 minutes
- 1.4 PDP Panel facing : no restricted
- 1.5 Measuring Equipment : Minolta CA 100 photometer
- 1.6 Magnetic field : no restricted
- 1.7 Control settings : Brightness, Contrast, Tint, Color set at Center(50)
- 1.8 Power input : 120Vac, 60Hz
- 1.9 Ambient temperature :  $20^\circ\text{C} \pm 5^\circ\text{C}$  ( $68^\circ\text{F} \pm 9^\circ\text{F}$ )
- 1.10 Display mode : Resolution 1024 (H) x 1024 (V) Pixels
- 1.11 Other conditions :
  - 1.11.1 With image sticking protection of PDP module, the luminance will descend by time on a same still screen and rapidly go down in 5 minutes. When measuring the color tracking and luminance of a same still screen, be sure to accomplish the measurement in one minute to ensure its accuracy.
  - 1.11.2 Due to the structure of PDP, the extra-high-bright same screen should not hold over 5 minutes for fear of branding on the panel.

## **ELECTRICAL CHARACTERISTICS**

### **2. Power Input**

2.1	<u>Voltage</u>	:	120VAC
2.2	<u>Input Current</u>	:	3.5A
2.3	<u>Maximum Inrush Current</u>	:	<30 A (FOR AC 120V ONLY)
	Test condition	:	Measured when switched off for at least 20 mins
2.4	<u>Frequency</u>	:	60Hz(±3Hz)
2.5	<u>Power Consumption</u>	:	330W Typical
	Test condition	:	full white display with maximum brightness and contrast
2.6	<u>Power Factor</u>	:	Meets IEC1000-3-2
2.7	<u>Withstanding voltage</u>	:	1.5kVac or 2.2kVdc for 1 sec

### **3. Display**

3.1	Screen Size	:	42" Plasma display
3.2	Aspect Ratio	:	16:9
3.3	Pixel Resolution	:	1024 x 1024
3.4	Peak Brightness	:	1400 cd/m <sup>2</sup> (Panel module without filter)
3.5	Contrast Ratio (Dark room)	:	3000:1 (Panel module without filter)
3.6	Viewing Angle	:	Over 160°
3.7	OSD language	:	English, Spanish, French

### **4. Signal**

4.1	<u>AV &amp; Graphic input</u>		
4.1.1	Composite signal	:	AV
4.1.2	Y,C Signal	:	S-Video
4.1.3	Component signal	:	YPbPr HDTV compatible
4.1.4	Graphic Input	:	D-Sub 15 pin detachable cable
4.1.5	HDMI	:	HDMI
4.1.6	PnP compatibility	:	DDC 1.0
4.1.7	I/P frequency	:	f <sub>H</sub> : 31.5kHz to 60kHz/f <sub>V</sub> : 56.25Hz to 75Hz (640x480 recommended)

- 4.2 Audio input  
Audio Input(L/Rx5) : 1 for DVI / D-Sub  
2 for YPbPr  
1 for S-Video  
1 for AV

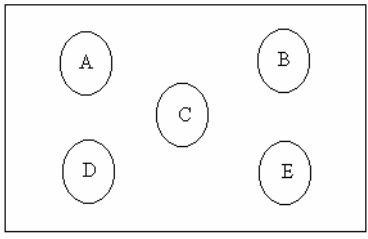
- 4.3 Audio output  
Audio Output (L/Rx1) : Monitor out(L/R)  
  
SPDIF : Coaxial x 1 (only for HDMI)

5. Environment

- 5.1 Operating environment  
5.1.1 Temperature : 5° to 33°C  
5.1.2 Relative humidity: 20% to 85%(non-condensing)  
  
5.2 Storage and Transport  
5.2.1 Temperature : -20°C to 60°C (-4° to 140°F)  
5.2.2 Relative humidity: 5% to 95%

6. Panel Characteristics

- 6.1 Type : FHP (A3)  
6.2 Size : 42", 994.8mm(W)x587mm(H)x66mm(D)±1mm  
6.3 Aspect ratio : 16:9  
6.4 Viewing angle : Over 160°  
6.5 Resolution : 1024 x 1024  
6.6 Weight : Approx 16kg  
6.7 Color : 1073.7 million colors by combination of 10 bits R,G,B digital  
6.8 Contrast : 3000:1, Peak White, display rate: 1%, In dark room.  
6.9 Peak brightness : 1400cd/m², Peak White, Max. gradation, display rate: 1%.  
  
6.10 Color Coordinate Uniformity : Contrast; Brightness and Color control  
at normal setting  
Test Pattern : Full white pattern



Average of point A,B,C,D and E +/- 0.01

6.11 Color temperature : Contrast and Brightness at Normal;  
Colortemperature set at Middle  
 $x=0.285\pm0.02$   
 $y=0.293\pm0.02$

6.12 Cell Defect Specifications  
Subject to Panel supplier specification as appends.

7. Front Panel Control Button

- 7.1 SEL. Up / Down Button : Select the up or down item in OSD menu.
- VOL. Left / Right Button : Press the key to increase the volume left or right.  
When selecting the adjusting item on OSD menu  
increase or decrease the data-bar.
- MENU Button : Press the key to display or exit the menu.
- SOURCE Button : Press the key to select the input signals source.
- 7.2 STANDBY Button : Switch on main power, or switch off to enter power  
Saving modes.
- 7.3 Main Power Switch : Turn on or off the unit.

8. OSD Function

Full on screen display

9. Agency Approvals

Safety           UL60950  
Emissions       FCC class B

10. Reliability

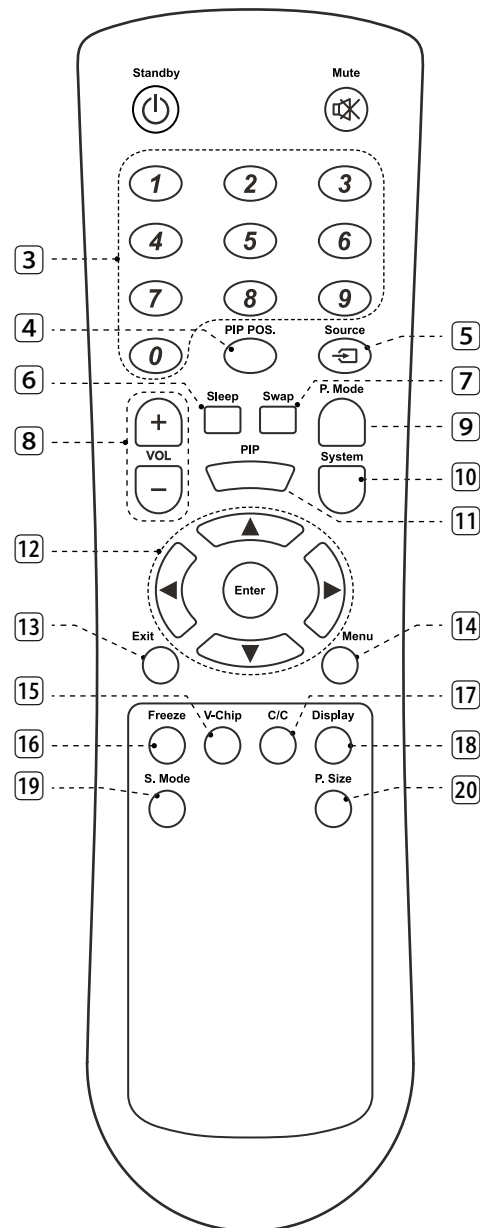
10.1 MTBF: 20,000 hours (Use moving picture signal at 25°C ambient)

11. **Accessories:** User Manual x 1, Remote Control x 1, Stand x 1, Power Cord x 1, Battery x2.



## 12. Remote Control

- 1 **Standby(⏻)**: Press this button to turn off to standby and turn on from standby.
- 2 **Mute(🔇)**: Press this button to quiet the sound system. Press again to reactivate the sound system.
- 3 **Number buttons**: Use these buttons to enter the password.
- 4 **PIP POS.** : Press the button to select different Image Position in PIP Mode.
- 5 **Source**: Press this button and use ▲ / ▼ button to select the signal sources. AV, S-Video, YPbPr 1, YPbPr 2, VGA or HDMI.
- 6 **Sleep**: Press this button to select the sleep time, such as “15 Min, 30 Min, 60 Min, 90 Min, 120 Min or off”.
- 7 **Swap**: Press this button to switch the Main window or Sub window pictures in PIP and Split Screen.
- 8 **VOL +/-** : Press these buttons to increase or decrease the volume.
- 9 **P. Mode** : Press the button to select different picture effect, such as “Normal, Vivid, Hi-Bright, User or Cinema”.
- 10 **System**: Press this button to select the color system, such as “AUTO or NTSC 3.58”.
- 11 **PIP**: Press this button to enter PIP function.
- 12 **Enter** : Press to enter or confirm.  
◀ / ▶ : They are used as ◀ / ▶ buttons in the OSD Menu screen.  
▲ / ▼ : They are used as ▲ / ▼ buttons in the OSD Menu screen.
- 13 **Exit**: Press this button to exit the OSD Menu.
- 14 **Menu**: Press this button to pop up the OSD Menu and press it again to exit the OSD Menu.
- 15 **V-Chip**: Press this button to enter the V-Chip Function. (Only for AV or S-Video)
- 16 **Freeze**: Press this button to hold on the screen. Press again to normal.
- 17 **C/C**: Press this button to enter the Closed Caption Function. (Only for AV or S-Video)
- 18 **Display**: Press the button to display the source information.
- 19 **S. Mode**: Press the button to select different sound effect, such as “Normal, News, Cinema, Concert or User”.
- 20 **P. Size**: Press this button, the picture will change according to Full, 4:3 or Panoramic. (inactive for VGA)



### 13. Support the Signal Mode

#### A. VGA Mode

Resolution	Horizontal Frequency (KHz)	Vertical Frequency (Hz)
640 x 480	31.50	60.00
	37.86	72.81
800 x 600	35.16	56.25
	37.90	60.32
	46.90	75.00
	48.08	72.19
1024 x 768	48.40	60.00

#### B.YPbPr Mode

Resolution	Horizontal Frequency (KHz)	Vertical Frequency (Hz)
480i	15.734	59.94
480p(720x480)	31.468	59.94
720p(1280x720)	45.00	60.00
1080i(1920x1080)	33.75	60.00

#### C.HDMI Mode

Resolution	Horizontal Frequency (KHz)	Vertical Frequency (Hz)
480p	31.468	59.94
720p	45.00	60.00
1080i	33.75	60.00

- When the signal received by the Display exceeds the allowed range, a warning message shall appear on the screen.
- You can confirm the input signal format from the on-screen.

**PHYSICAL CHARACTERISTICS****14. Power Cord**

Length : 1.8m nominal

Type : optional

**15. Cabinet**

15.1 Color : “Black” colour as defined by colour plaque reference number

15.2 Weight

Net weight : 38.5 kg(with stand, speaker and handles)

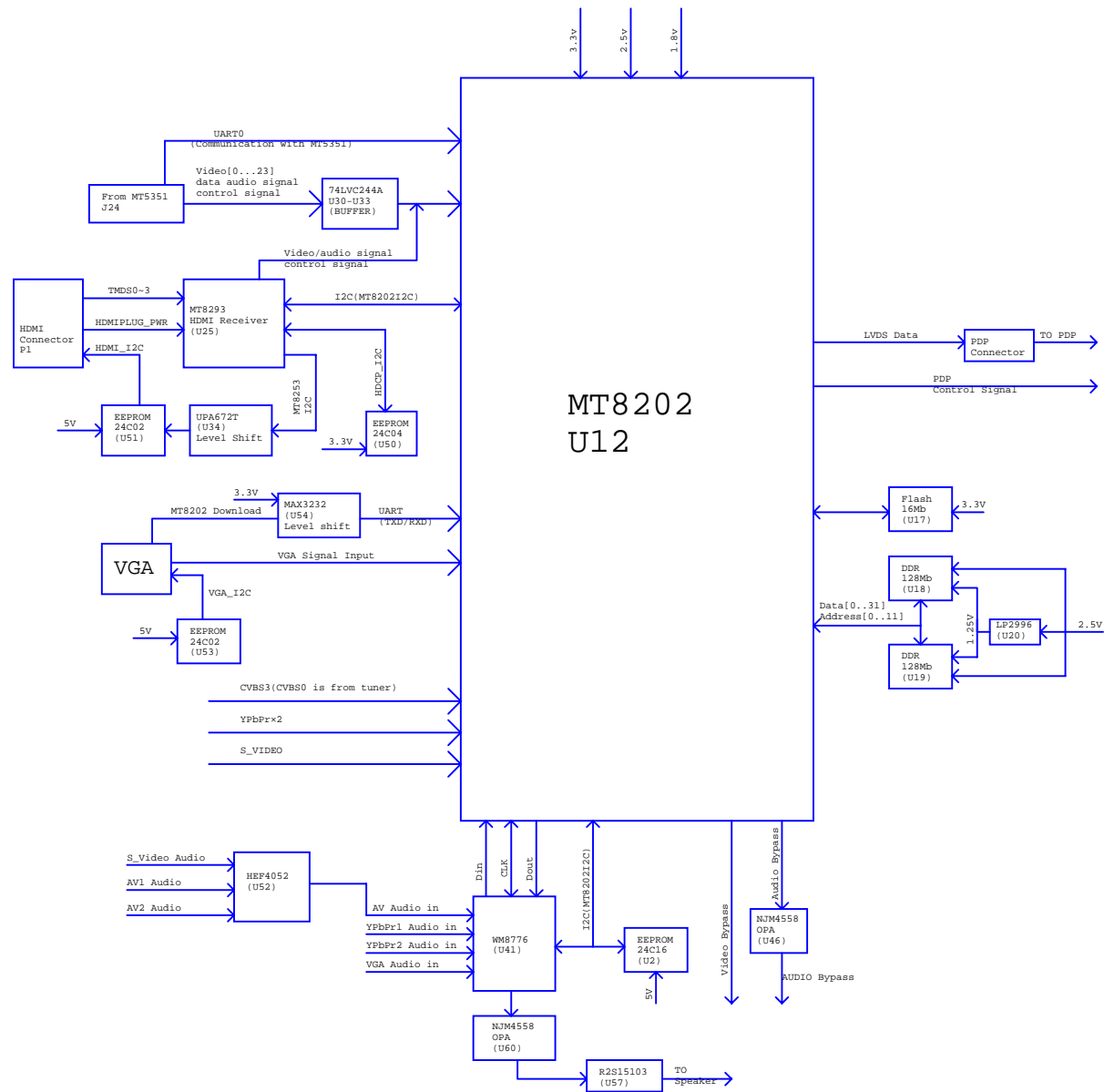
Gross weight : 45.0 kg

15.3 Dimensions(w/o stand)

Width : 1039.8 mm

Height : 719.9 mm

Depth : 109.5 mm



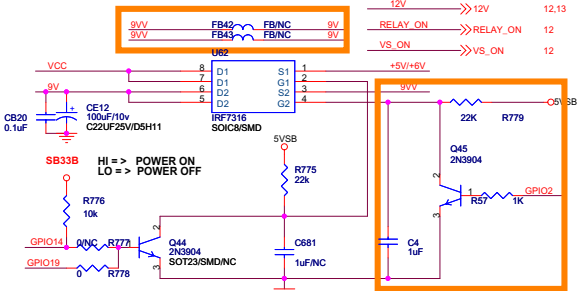
## **Circuit Diagram**

- **Main (Video) board**
- **Keypad board**
- **Remote control receiver board**
- **External L/R Speakers board**
- **Remote control board**

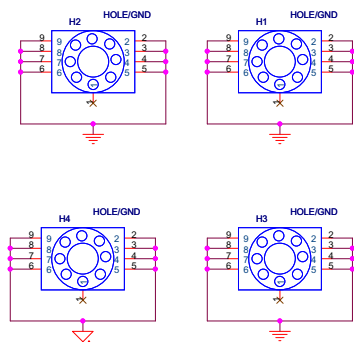
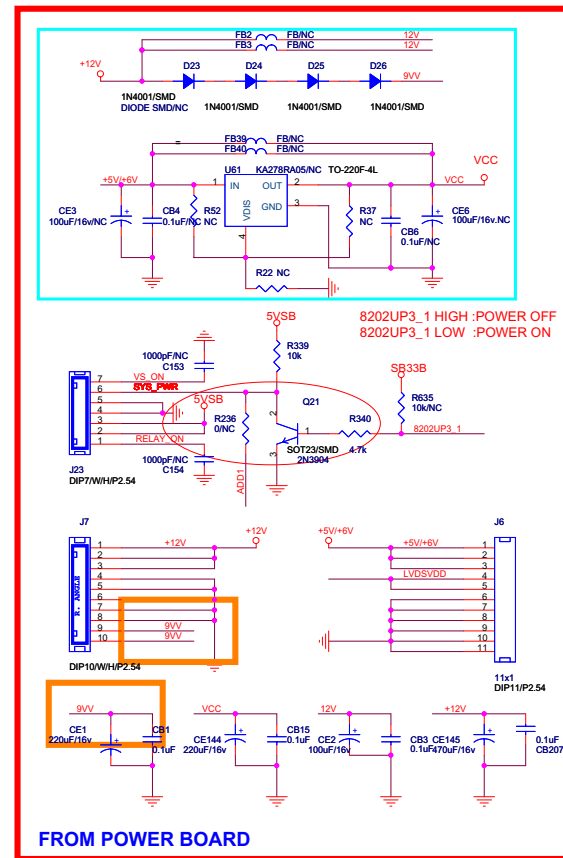
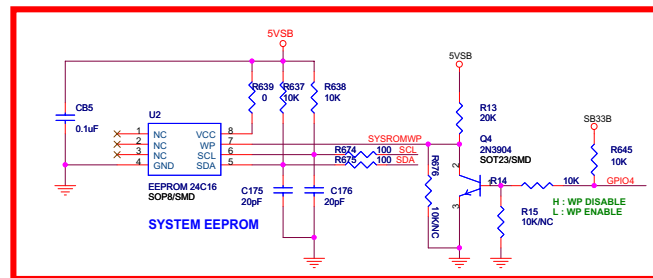
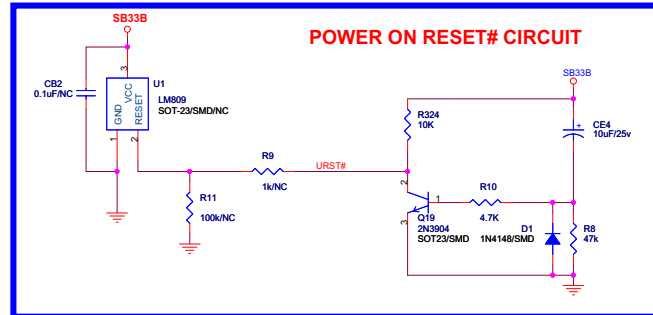
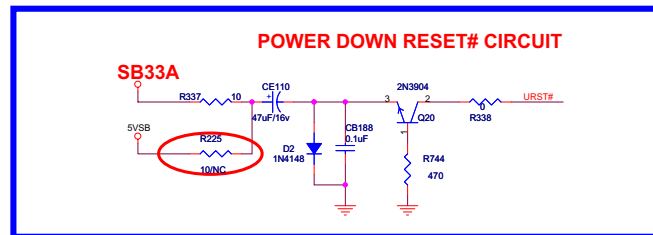
# MT8202E (PBGA388) LCDTV BOARD 4 LAYERS FOR AKAI

1. INDEX / POWER / RESET / EEPROM
2. LDO
3. MT8202E PBGA388
4. MT8202 DECOUPLING
5. DDR MEMORY & FLASH
6. MT5351 INTERFACE
7. HDMI MT8293
8. DAUGHTER BOARD IN
9. WM8776 & VIDEO BYPASS
10. AUDIO / VIDEO IN CIRCUIT
11. VGA & PC AUDIO IN
12. LVDS OUT
13. BACK LIGHT / KEYPAD
14. TUNER IN
15. AV IN
16. AUDIO IN
17. AUDIO Amplifier

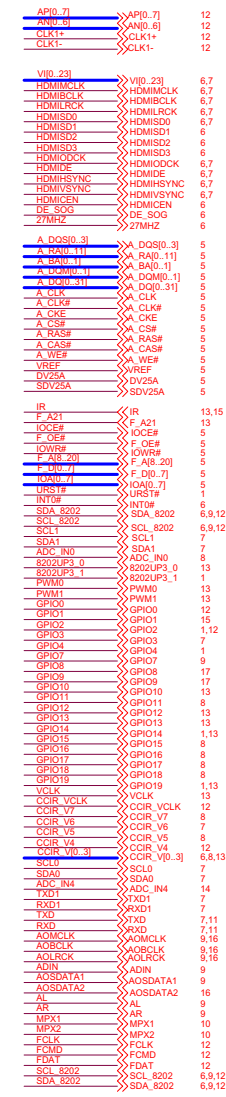
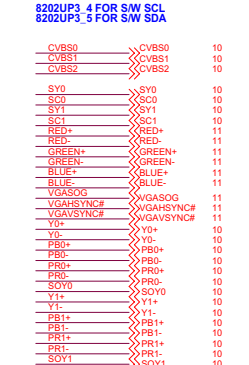
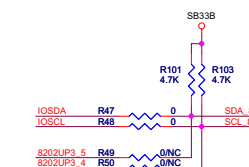
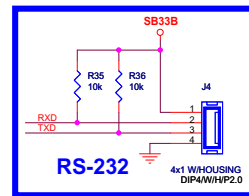
Rev	History	P#	Date
AKAI_MT8202_27US_LVDS_V0.0	New		2005/11/22
AKAI_MT8202_27US_HDMI_LVDS_V0.0	ADD HDMI / VIDEO / AUDIO CONNECTOR INPUT IN		



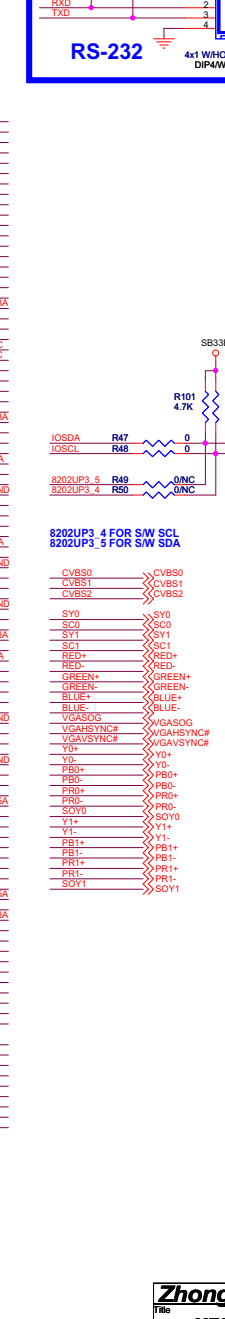
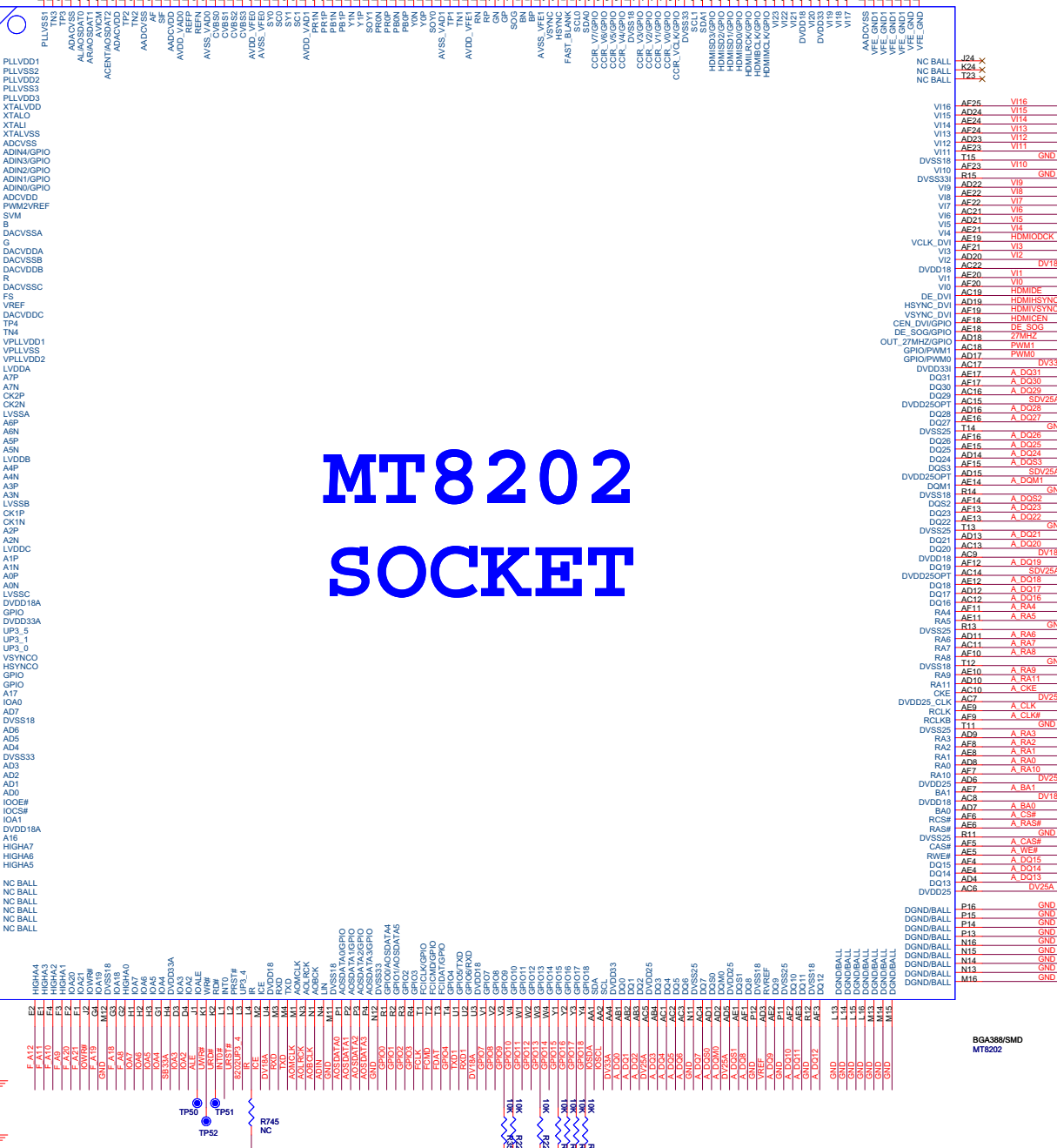
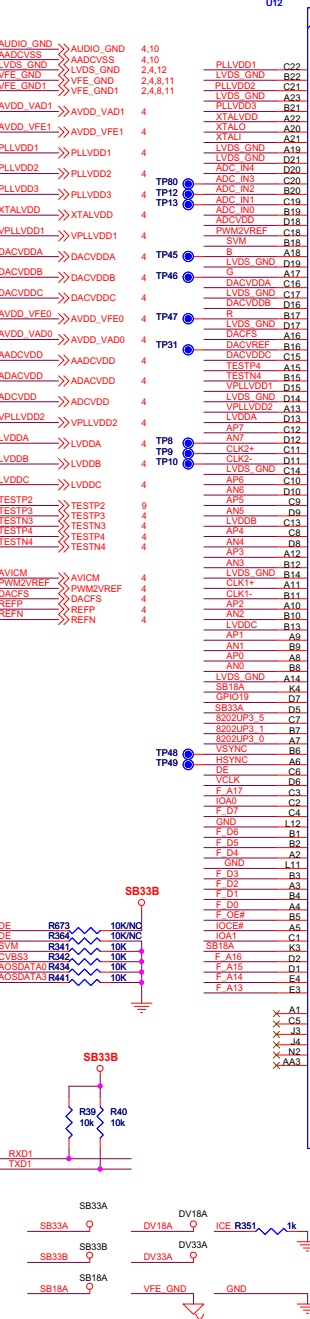
LVDSVDD	>>> LVDSGND	2,3,4
SCL	>>> SCL	9,14
SDA	>>> SDA	9,14
URST#	>>> URST#	3
8202UP3_1	>>> 8202UP3_1	3
GPIO2	>>> GPIO2	3,12
GPIO4	>>> GPIO4	3
GPIO14	>>> GPIO14	3,13
GPIO19	>>> GPIO19	3,13
9V	>>> 9V	7,9,14
12V	>>> 12V	12,13
RELAY_ON	>>> RELAY_ON	12
VS_ON	>>> VS_ON	12







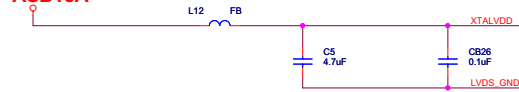
# MT8202 SOCKET



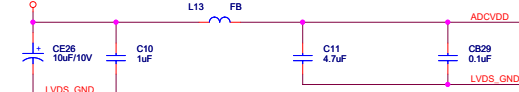


## STANDBY ANALOG POWER

### ASB18A

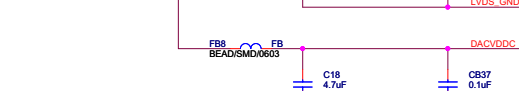
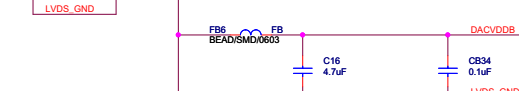
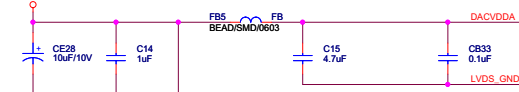


### ASB33A



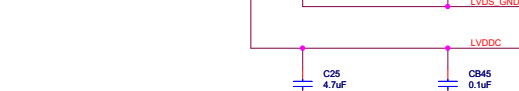
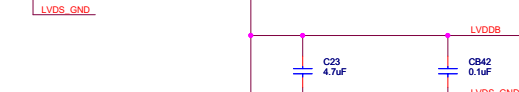
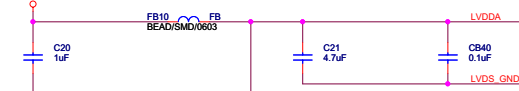
## NORMAL VIDEO DAC POWER

### DACVDD



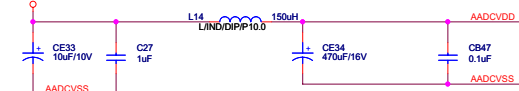
## NORMAL VIDEO DAC POWER

### AV33A

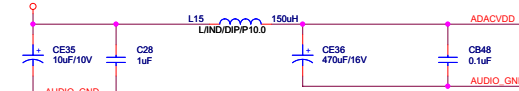


## NORMAL AUDIO ADC / DAC POWER

### ADC33A

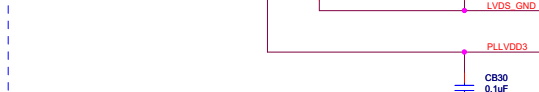
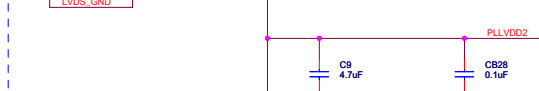
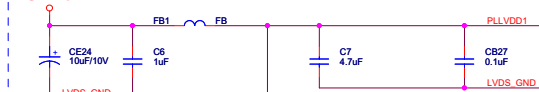


### ADC33A

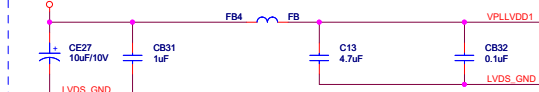


## NORMAL ANALOG POWER

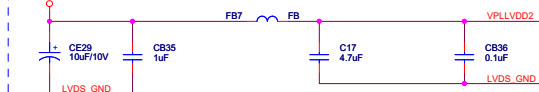
### ASB18A



### AV18A

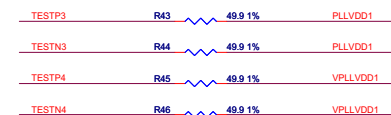
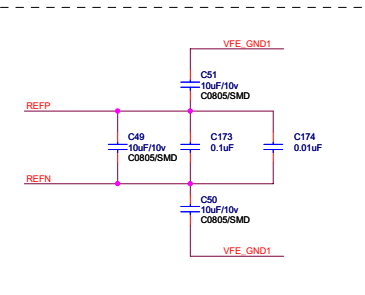
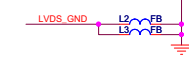
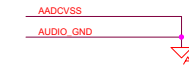
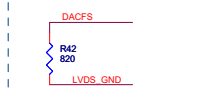
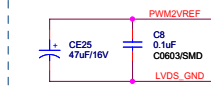
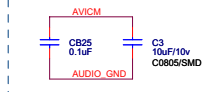
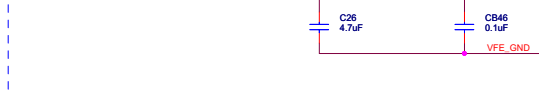
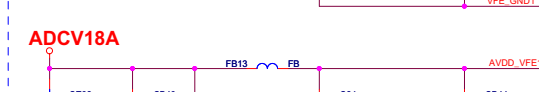
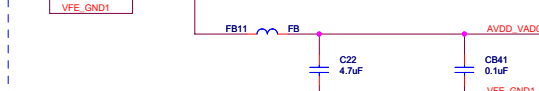
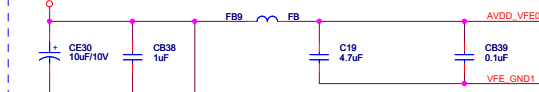


### AV33A

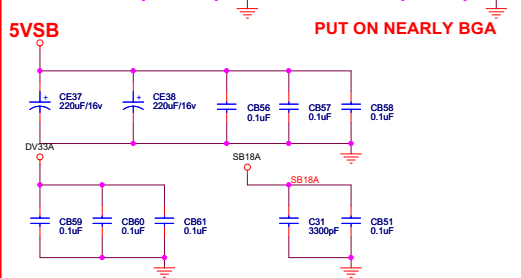
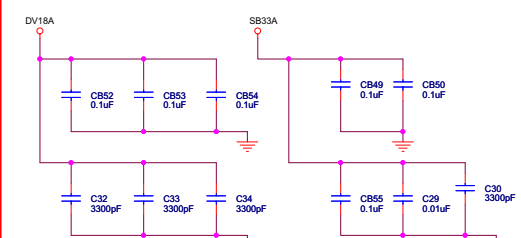


## NORMAL VIDEO ADC POWER

### ADC33A



## MT8202 DIGITAL POWER & DECOUPLING

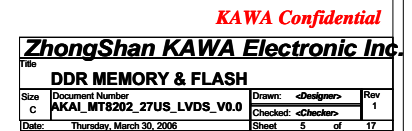


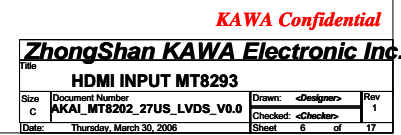
PUT ON NEARLY BGA

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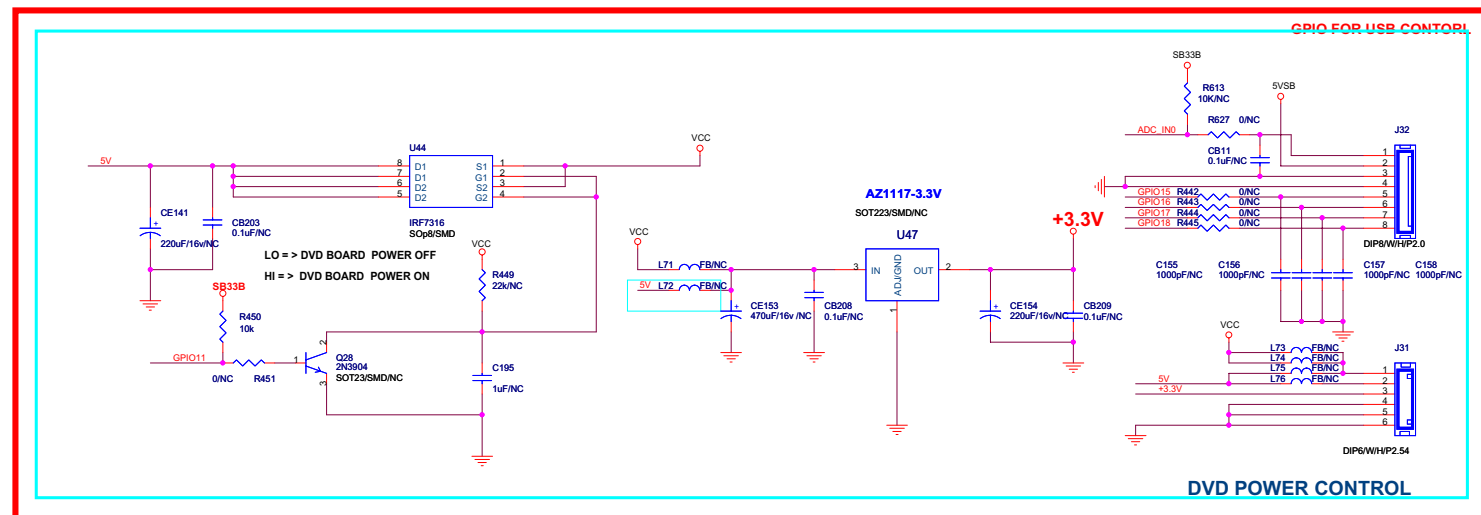
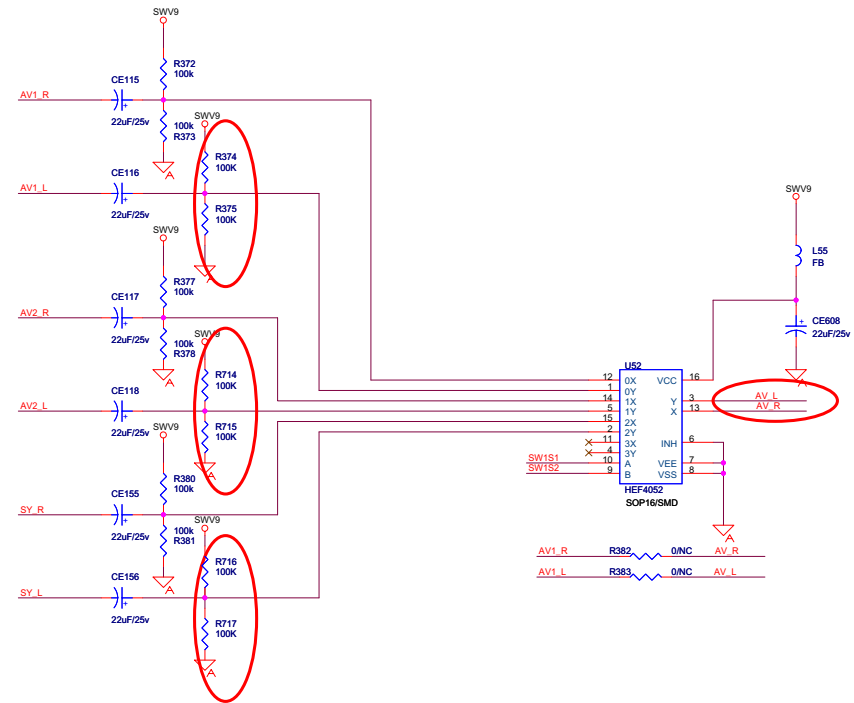
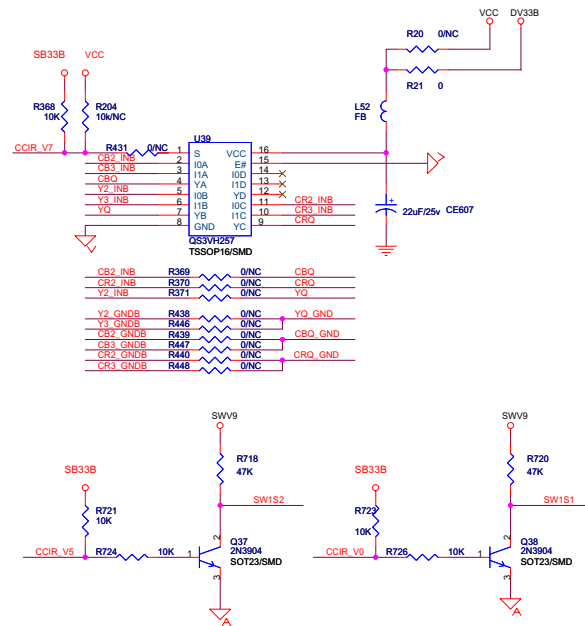


## INPUT

ADC_IN0	ADC_IN0	3
CCIR_V0	CCIR_V0	3
CCIR_V5	CCIR_V5	3
CCIR_V7	CCIR_V7	3
GPIO11	GPIO11	3
GPIO15	GPIO15	3
GPIO16	GPIO16	3
GPIO17	GPIO17	3
GPIO18	GPIO18	3
VFE_GND	VFE_GND	2,3,4,11
AADC_VSS	AADC_VSS	3,4,10
AV1_R	AV1_R	15
AV1_L	AV1_L	15
AV2_R	AV2_R	15
AV2_L	AV2_L	15
SY_R	SY_R	15
SY_L	SY_L	15
Y2_INB	Y2_INB	15
Y2_GNDB	Y2_GNDB	15
Y2_GNDB	Y2_GNDB	10,15
CR2_INB	CR2_INB	15
CR2_GNDB	CR2_GNDB	10,15
CR2_GNDB	CR2_GNDB	10,15
Y3_INB	Y3_INB	15
Y3_GNDB	Y3_GNDB	15
Y3_GNDB	Y3_GNDB	10,15
CR3_INB	CR3_INB	15
CR3_GNDB	CR3_GNDB	15
CR3_GNDB	CR3_GNDB	10,15
9V	9V	1,7,9,14

## OUTPUT

AV_R	AV_R	9
AV_L	AV_L	9
YQ	YQ	10
CBQ	CBQ	10
CRQ	CRQ	10
YQ_GND	YQ_GND	10
CBQ_GND	CBQ_GND	10
CRQ_GND	CRQ_GND	10



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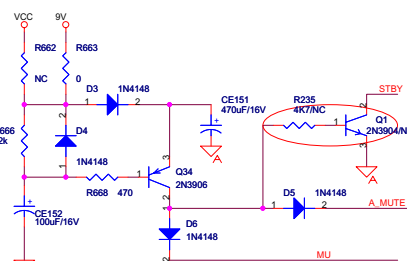
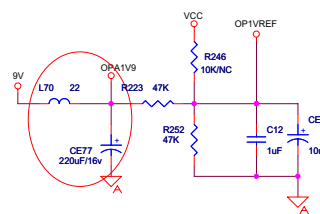
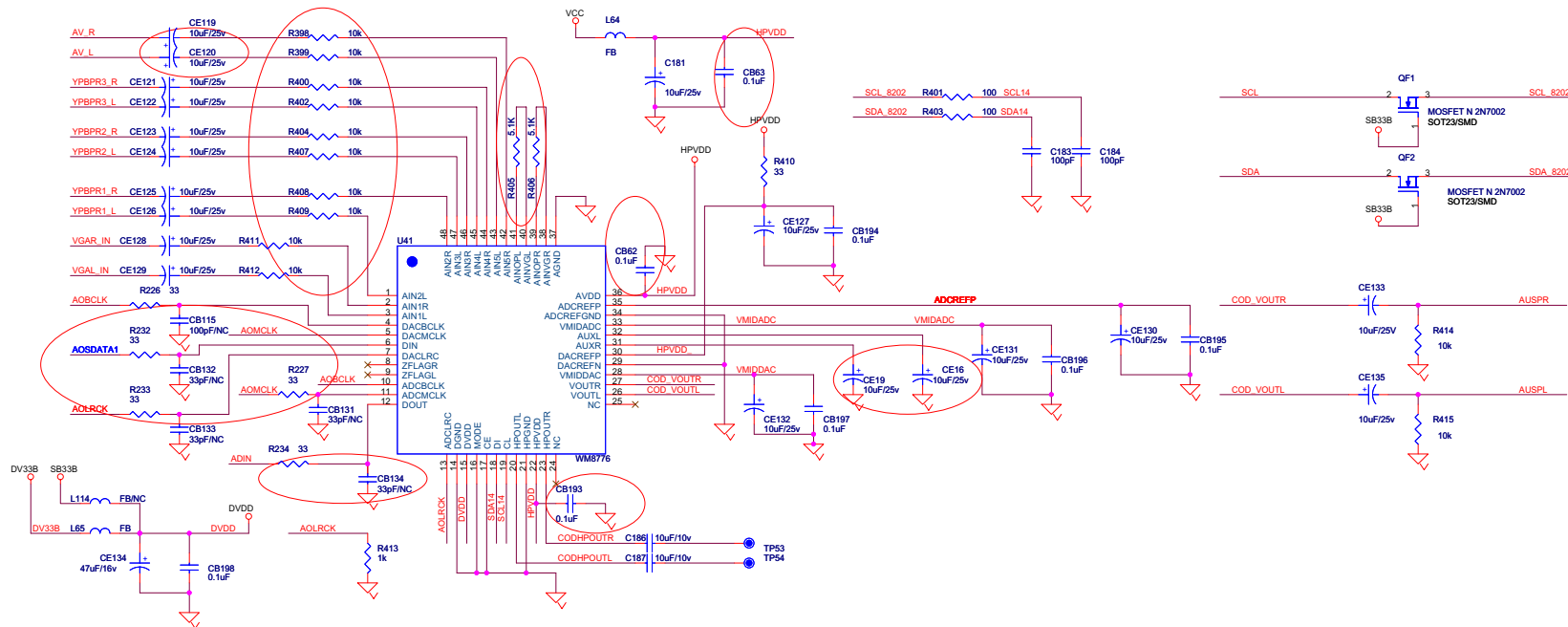
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DAUGHTER BOARD IN

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GP107	<>	GP107	3
SCL	<>	SCL	1.14
SDA	<>	SDA	3
SDA_S202	<>	SDA_S202	3.12
SCL_8202	<>	SCL_8202	3.12
AD0SDATA1	<>	AD0SDATA1	3.16
AD0CLK	<>	AD0CLK	3.16
AOBCLK	<>	AOBCLK	3.16
AOBCLKR	<>	AOBCLKR	3.16
ADIN	<>	ADIN	3
AV_R	<>	AV_R	8
AV_L	<>	AV_L	8
YPBPR1_L	<>	YPBPR1_L	15
YPBPR1_R	<>	YPBPR1_R	15
YPBPR2_L	<>	YPBPR2_R	15
YPBPR3_L	<>	YPBPR3_R	15
YPBPR3_L	<>	YPBPR3_R	15
VGAL_IN	<>	VGAL_IN	11
VGAL_IN	<>	VGAL_IN	11
TESTP2	<>	TESTP2	3
AL	<>	AL	1.14
AR	<>	AR	3
MU	<>	MU	1.14
A_MUTE	<>	A_MUTE	1
MUTE	<>	MUTE	1.14

AUSPR	» AUSPR	16
AUSPL	» AUSPL	16
AVR_OUT	» AVR_OUT	15
AVL_OUT	» AVL_OUT	15
CVBS_OUT	» CVBS_OUT	6,15



**SB33B**

AVR\_OUT1

GPIO7

L: ENABLE  
H: MUTE

AVL\_OUT1

Q29 2N3904 SOT23/SMD

Q30 2N3904 SOT23/SMD

R631 1.5K

R632 470

R677 2K

C134 1uF

R751 2K

R644 470

C152 1uF

5V

AVR

AVL

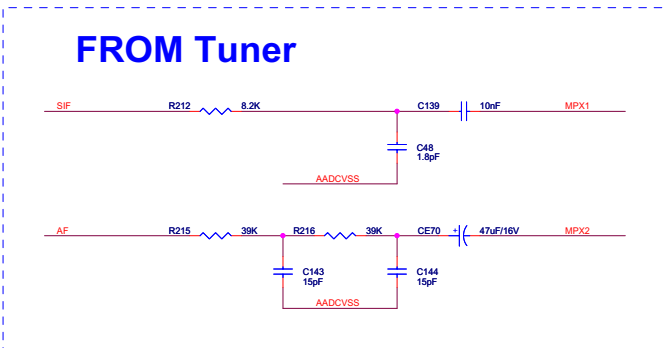
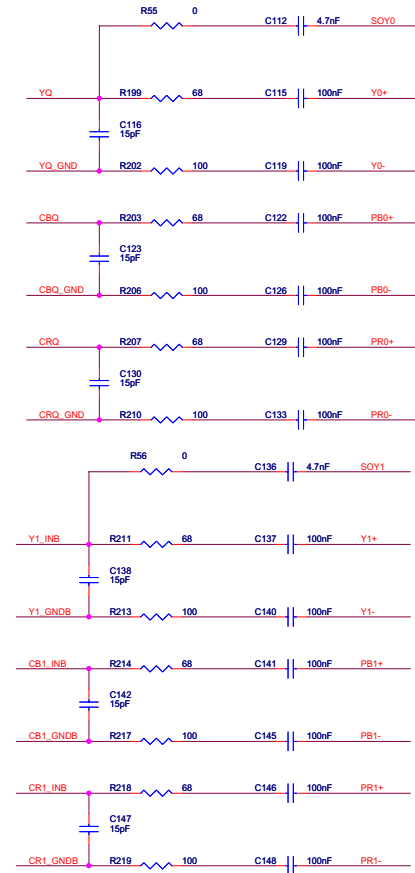
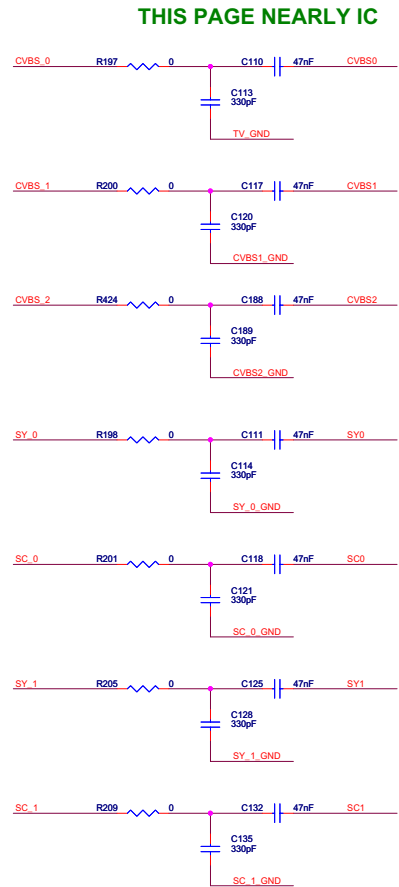
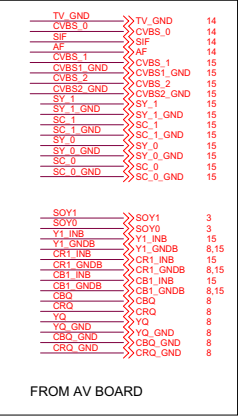
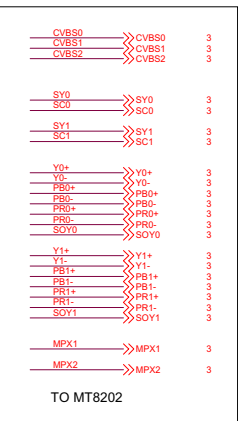
**BYPASS AUDIO OUTPUT**

**AR Channel:** The circuit starts with an input resistor R647 (0Ω) connected to the input signal. This is followed by a bypass capacitor CE147 (10μF/16V, C100UF16V/D8H11) in parallel with the signal path. The signal then passes through a resistor R648 (10KΩ) to the non-inverting input of the NJM4558 OPA op-amp. The op-amp is configured as a voltage follower, with its output connected to the inverting input. The feedback path consists of a resistor R649 (5.1KΩ) and a capacitor C603 (150pF) in parallel. The op-amp is powered by OP1VREF and OP1V9. The output of the op-amp is connected to the speaker terminal AVR\_OUT1 through a resistor R650 (100Ω) and a capacitor CE148 (10μF/10V, C100UF10V/D8H11) in parallel. The speaker terminal AVR\_OUT is also connected to the output.

**AL Channel:** The circuit starts with an input resistor R652 (0Ω) connected to the input signal. This is followed by a bypass capacitor CE149 (10μF/16V, C100UF16V/D8H11) in parallel with the signal path. The signal then passes through a resistor R653 (10KΩ) to the non-inverting input of the NJM4558 OPA op-amp. The op-amp is configured as a voltage follower, with its output connected to the inverting input. The feedback path consists of a resistor R654 (5.1KΩ) and a capacitor C605 (150pF) in parallel. The op-amp is powered by OP1VREF and OP1V9. The output of the op-amp is connected to the speaker terminal AVL\_OUT1 through a resistor R655 (100Ω) and a capacitor CE150 (10μF/10V, C100UF10V/D8H11) in parallel. The speaker terminal AVL\_OUT is also connected to the output.

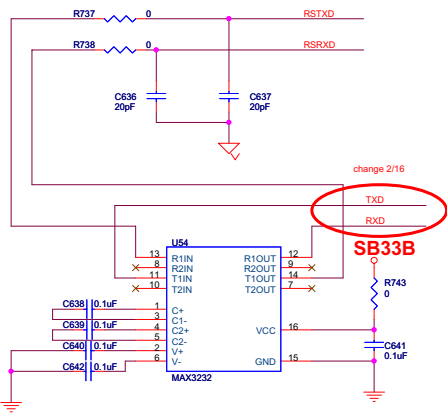
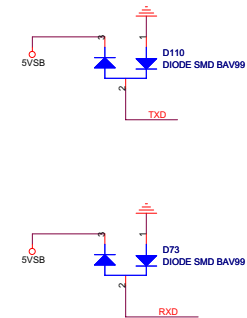
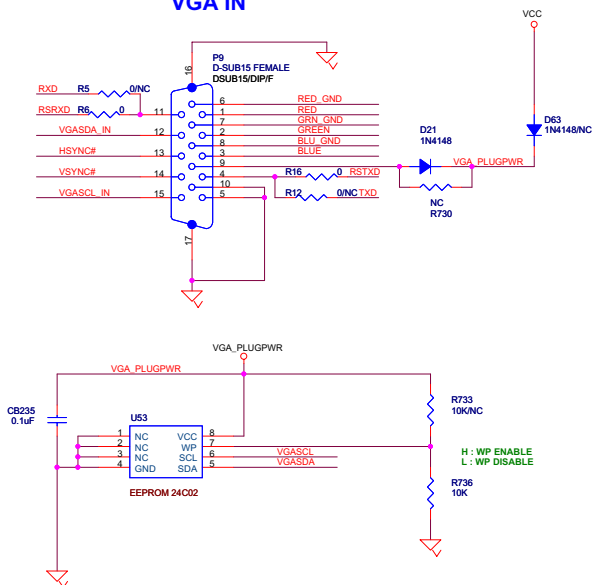
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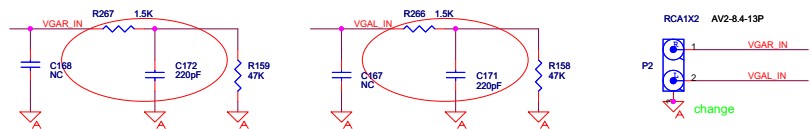
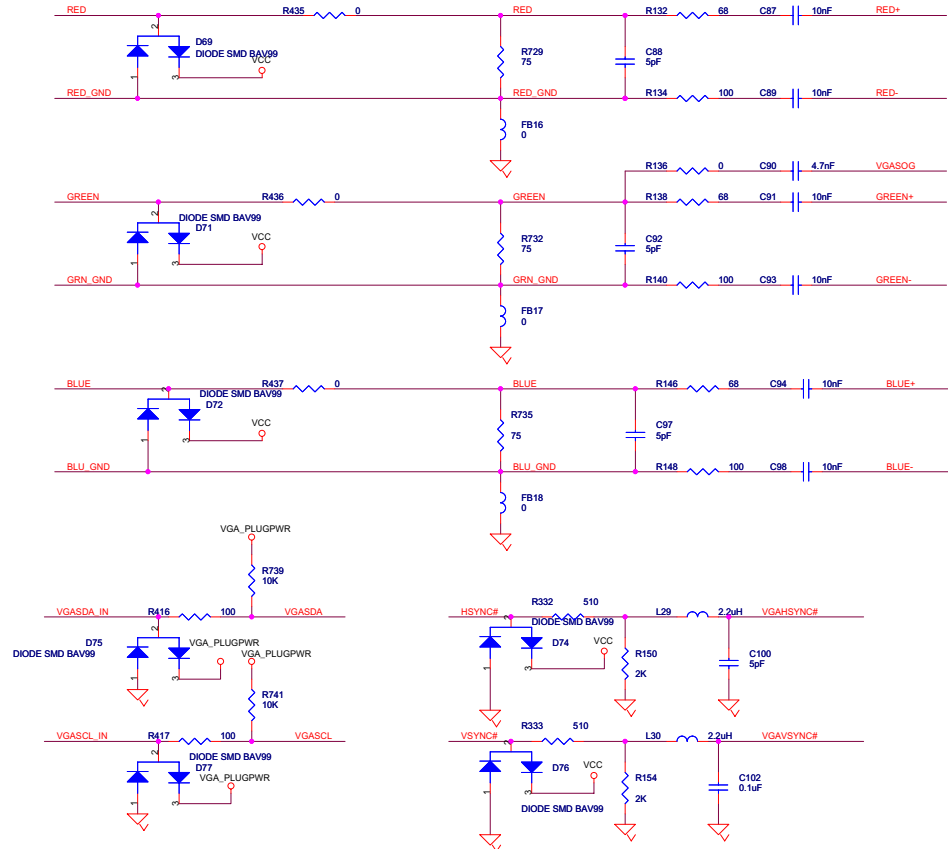




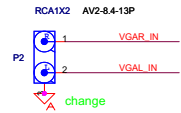
## VGA IN



## NEARLY VGA CON

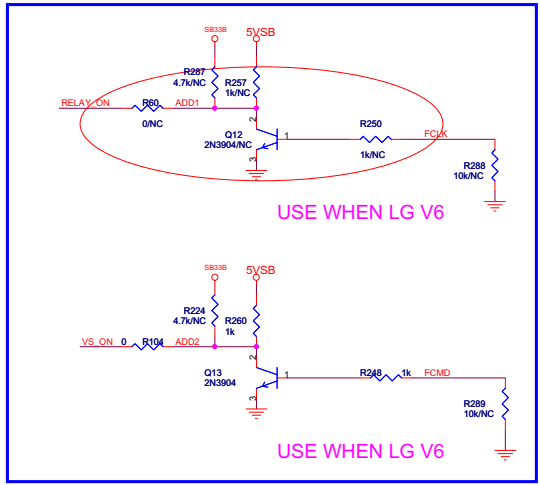
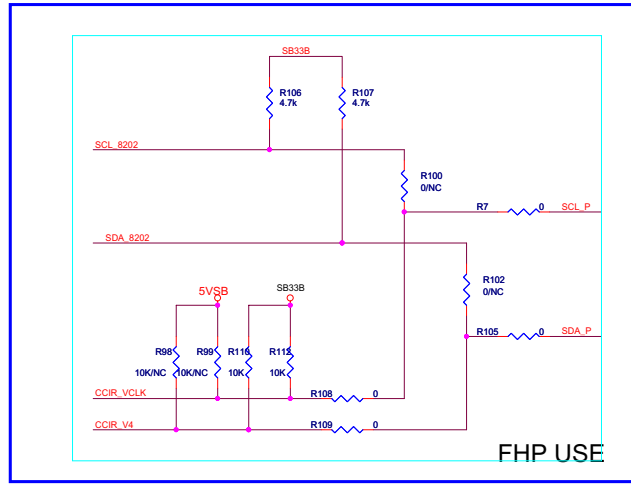
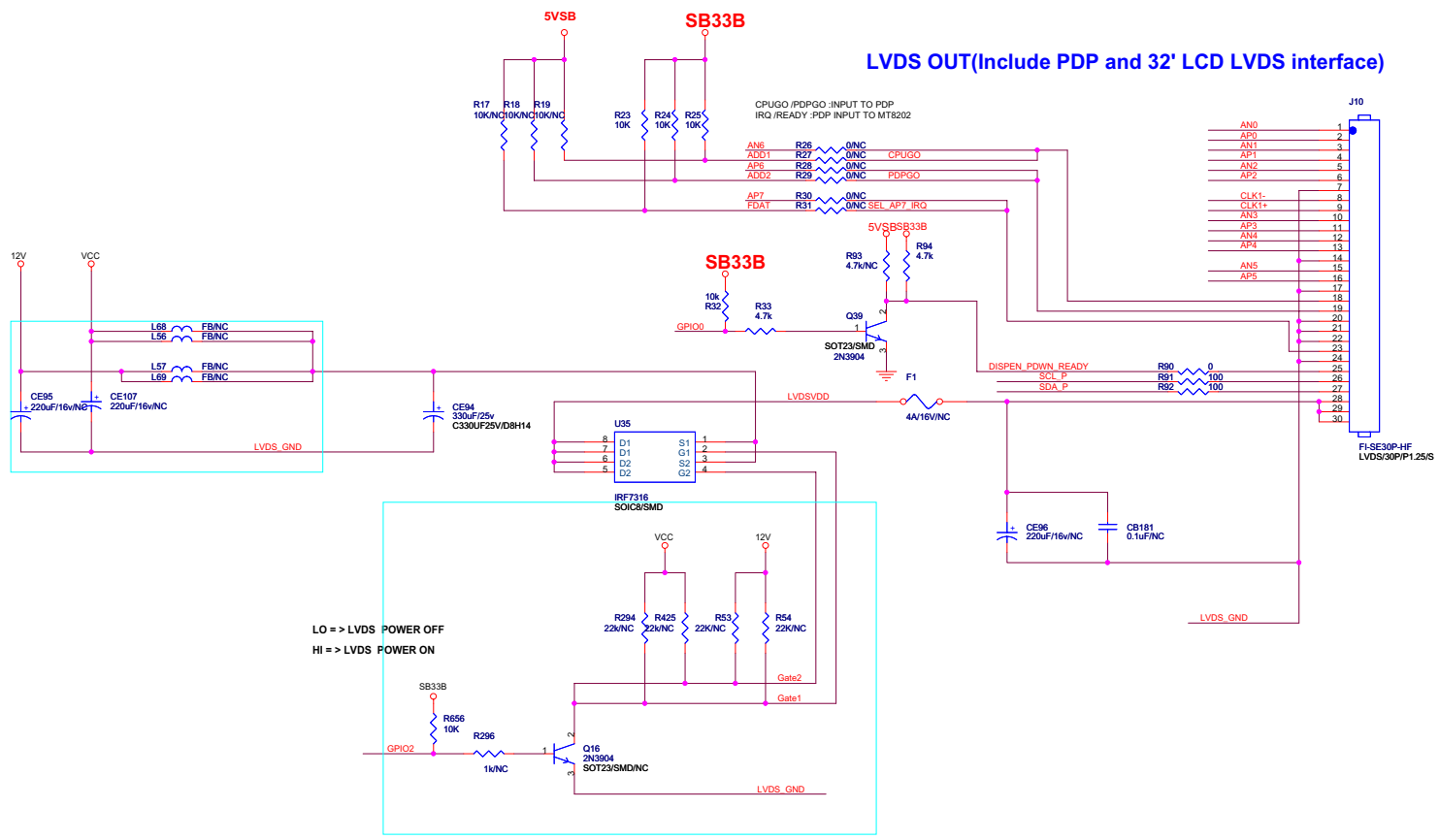


## VGA/DVI AUDIO INPUT



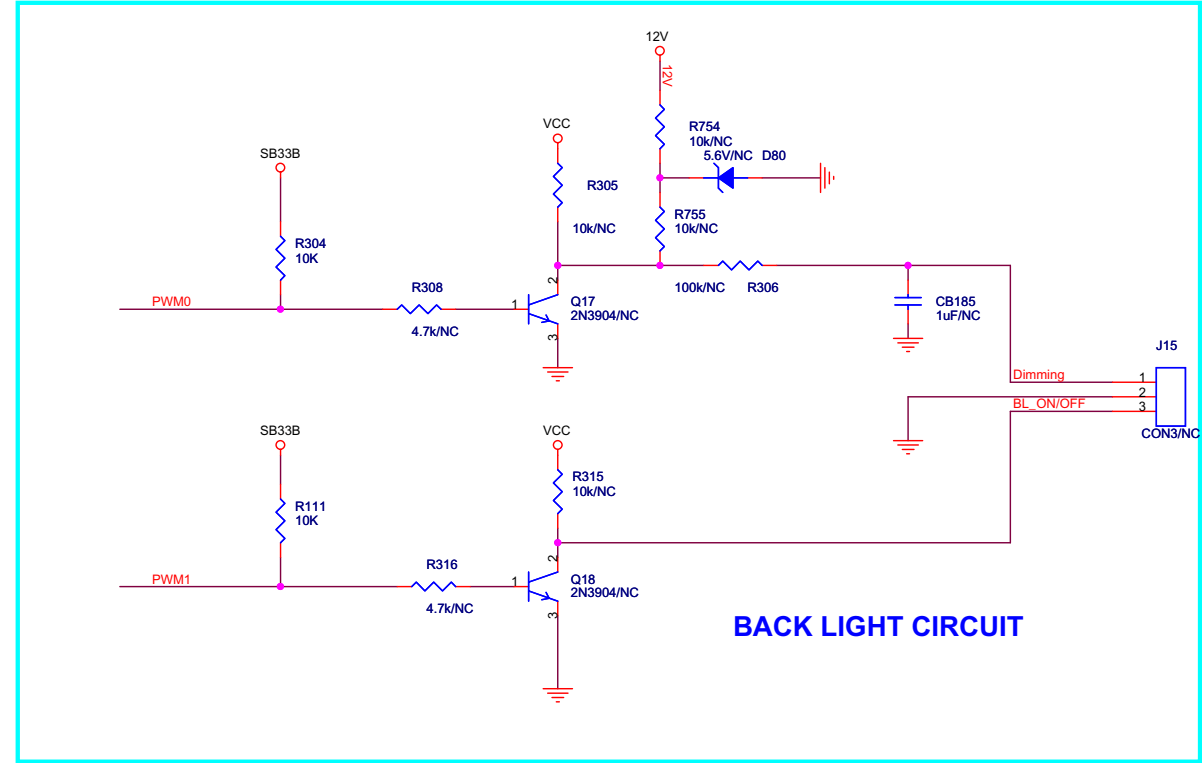
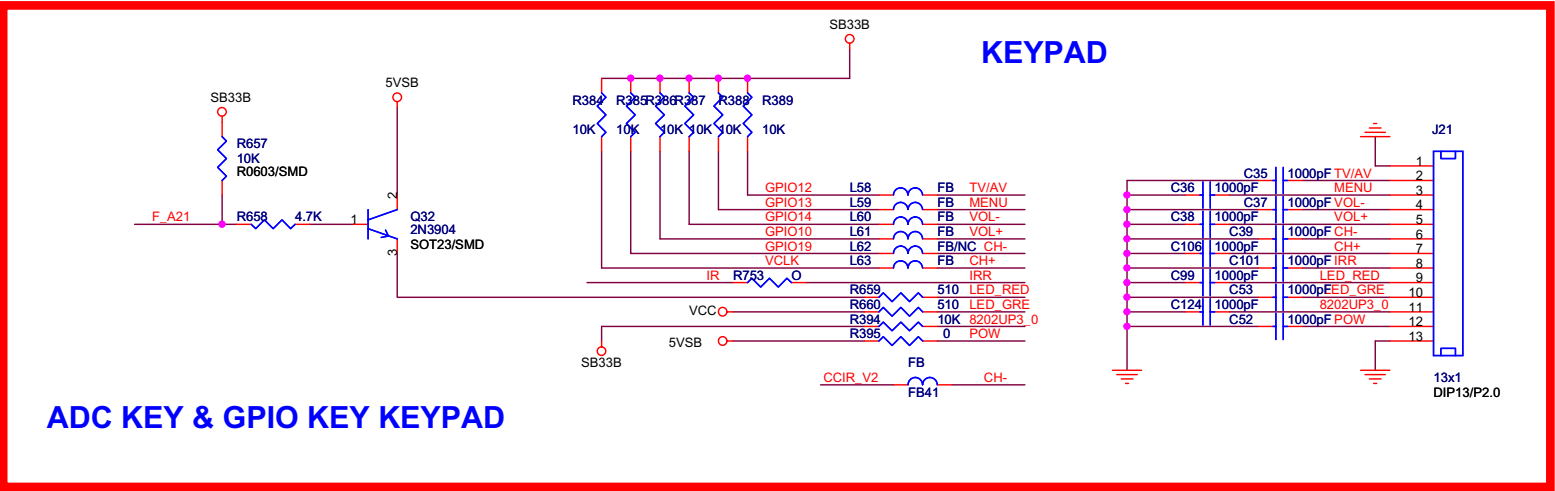


GPI00	>>>	GPI00	3
GPI02	>>>	GPI02	1,3
CLK1+	>>>	CLK1+	3
CLK1-	>>>	CLK1-	3
AP0_7	>>>	AP0_7	3
AP0_6	>>>	AP0_6	3
LVDS_GND	>>>	LVDS_GND	2,3,4
LVDS_VDD	>>>	LVDS_VDD	2,3,4
CCIR_VCLK	>>>	CCIR_VCLK	3
CCIR_V4	>>>	CCIR_V4	3
FCLK	>>>	FCLK	3
FCMD	>>>	FCMD	3
FDAT	>>>	FDAT	3
SCL_8202	>>>	SCL_8202	3,6,9
SDA_8202	>>>	SDA_8202	3,6,9
RELAY_ON	>>>	RELAY_ON	1
VS_ON	>>>	VS_ON	1
12V	>>>	12V	1,13



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LVDS OUT			
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IR	>>>IR	3,15
GPIO10	>>>GPIO10	3
GPIO12	>>>GPIO12	3
GPIO13	>>>GPIO13	3
GPIO14	>>>GPIO14	1,3
PWM0	>>>PWM0	3
PWM1	>>>PWM1	3
8202UP3_0	>>>8202UP3_0	3
GPIO14	>>>GPIO14	1,3
GPIO19	>>>GPIO19	1,3
VCLK	>>>VCLK	3
F_A21	>>>F_A21	3
CCIR_V2	>>>CCIR_V2	3
12V	>>>12V	1,12



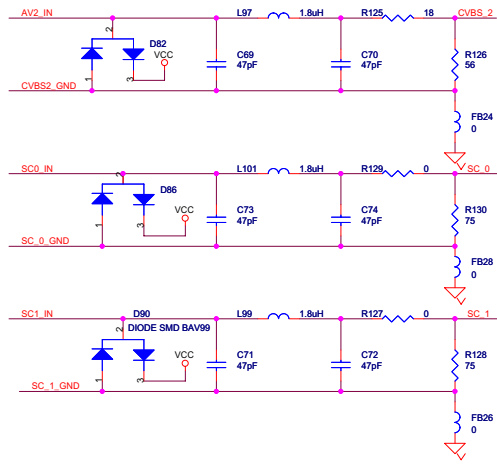
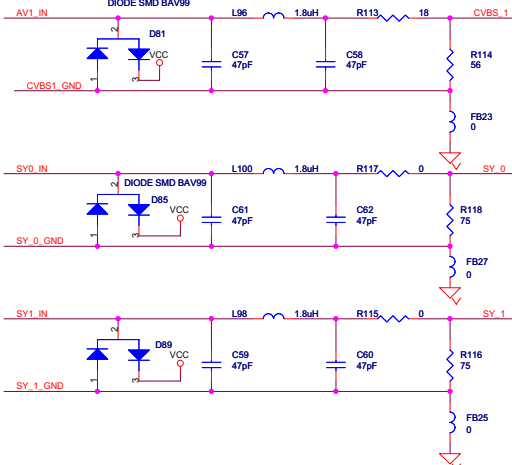
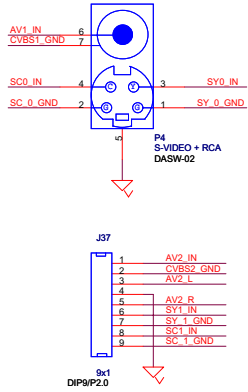
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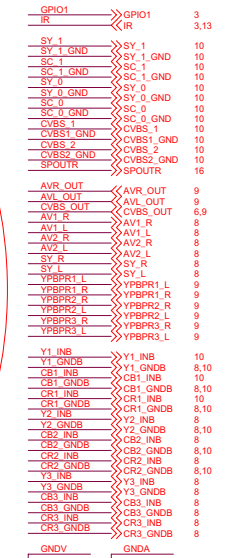
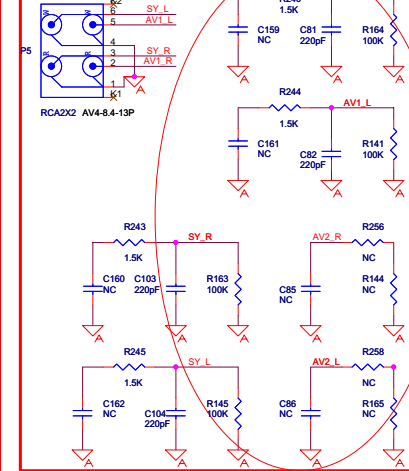
Title <b>BACK LIGHT / KEYPAD</b>			
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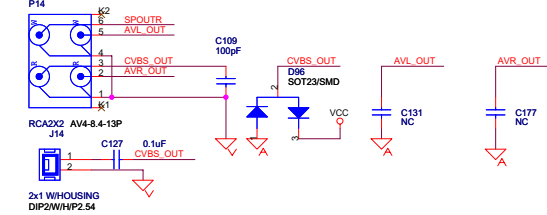
## AV /YC VIDEO IN



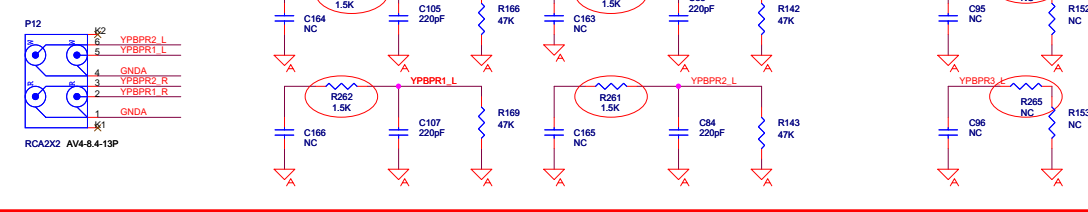
## AV /YC AUDIO IN



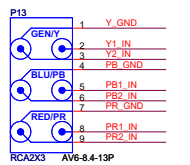
## AV VIDEO/AUDIO OUT.



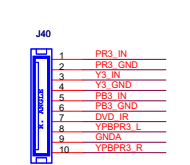
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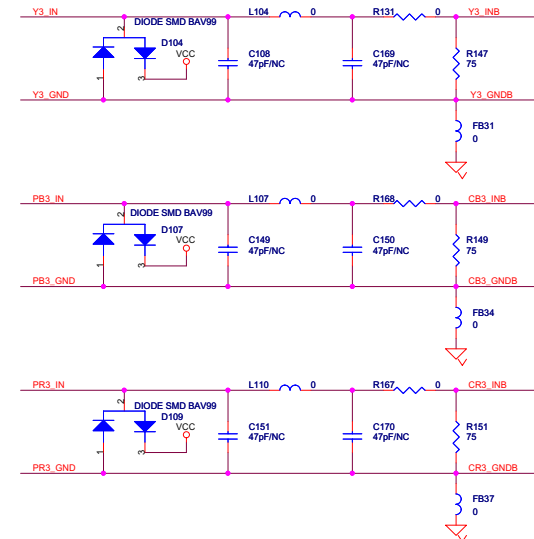
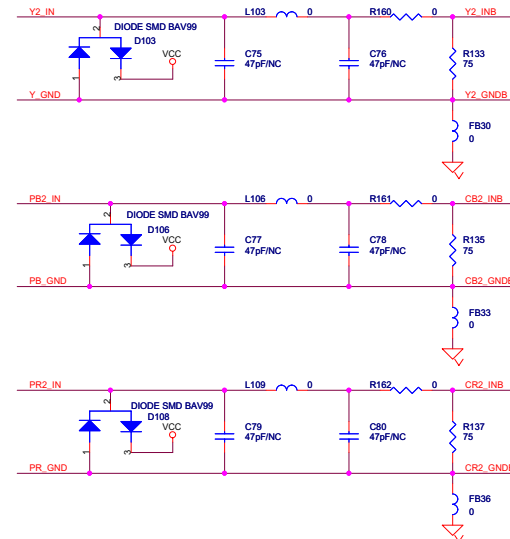
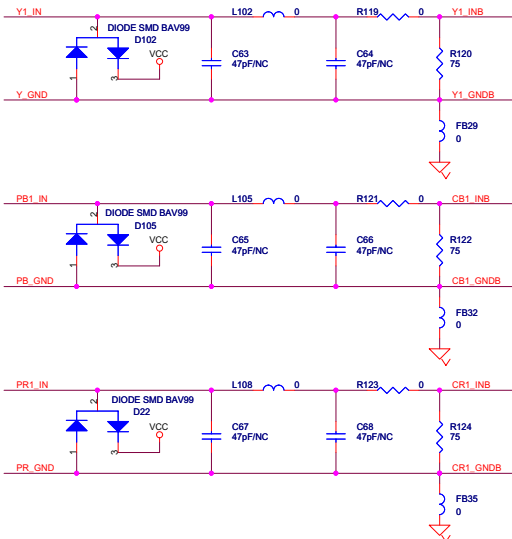
## YPBPR VIDEO IN.



## YPBPR1 / 2 INPUT.



## YPBPR 3 INPUT.



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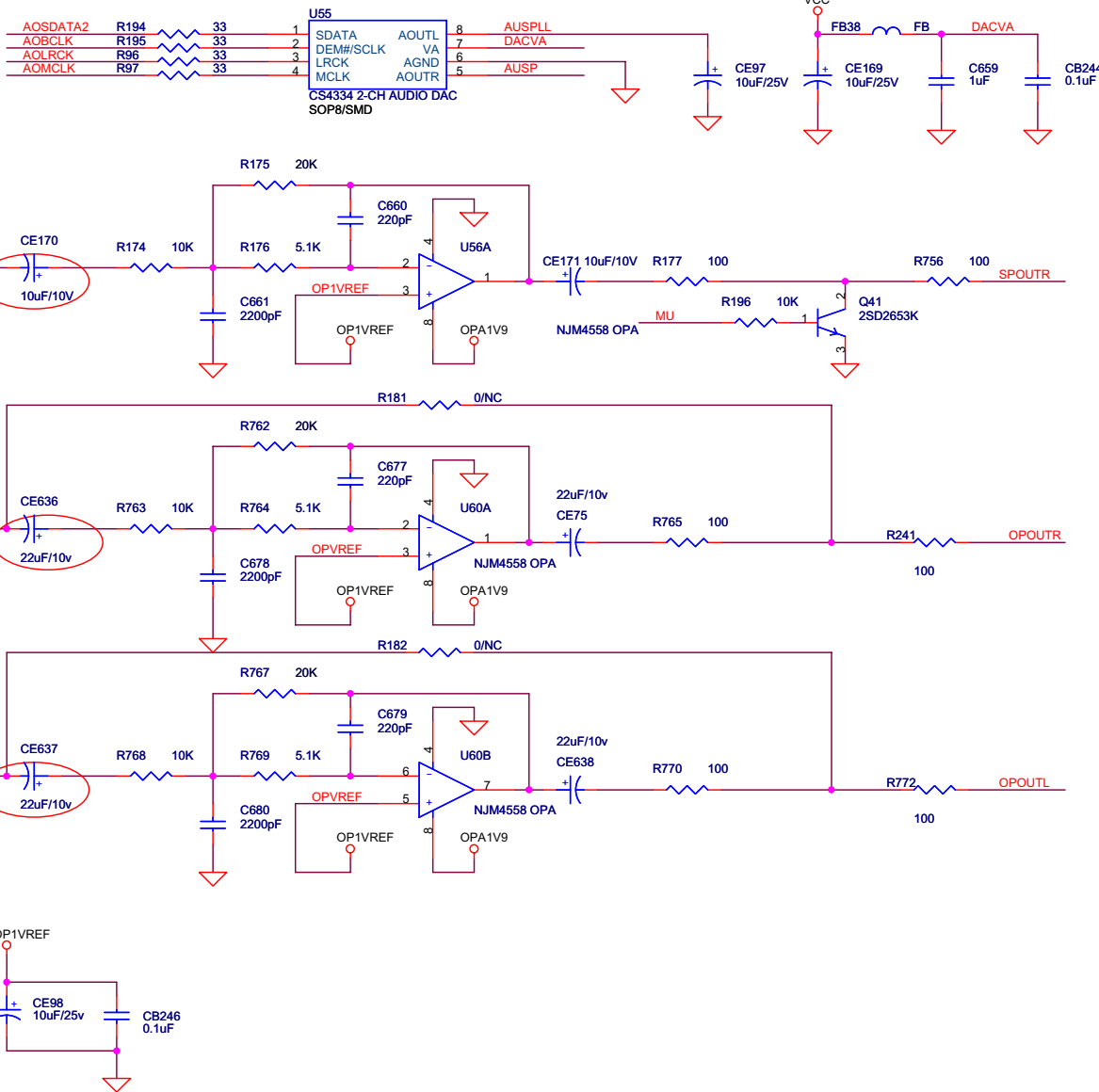
AV IN

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AOSDATA2 >> AOSDATA2 3  
 AOMCLK >> AOMCLK 3,9  
 AOBCLK >> AOBCLK 3,9  
 AOLRCK >> AOLRCK 3,9  
 MU >> MU 9  
 SPOUTR >> SPOUTR 15  
 AUSPR >> AUSPR 9  
 AUSPL >> AUSPL 9  
 OPOUTR >> OPOUTR 17  
 OPOUTL >> OPOUTL 17  
 A\_MUTE >> A\_MUTE 9,17

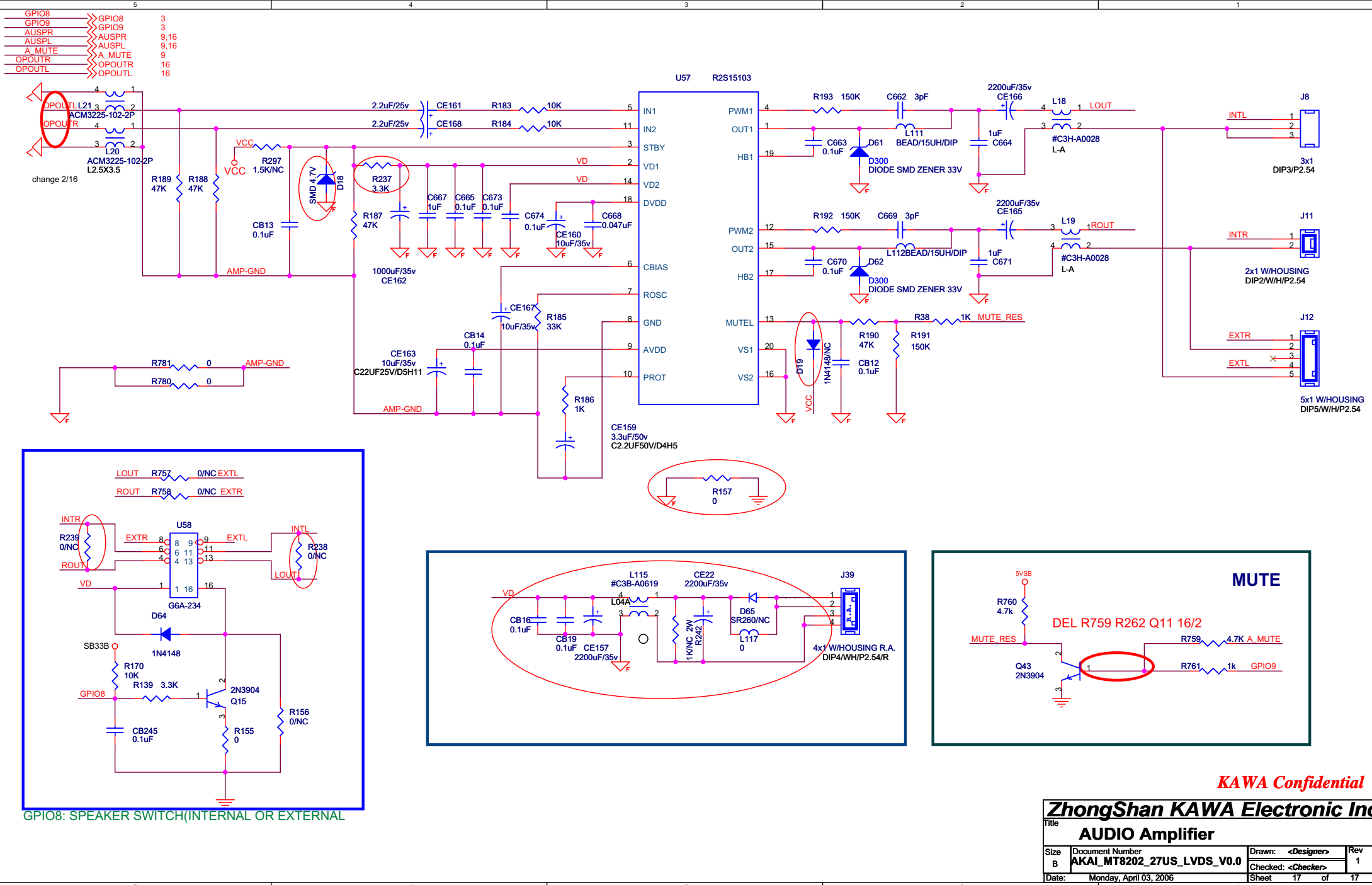


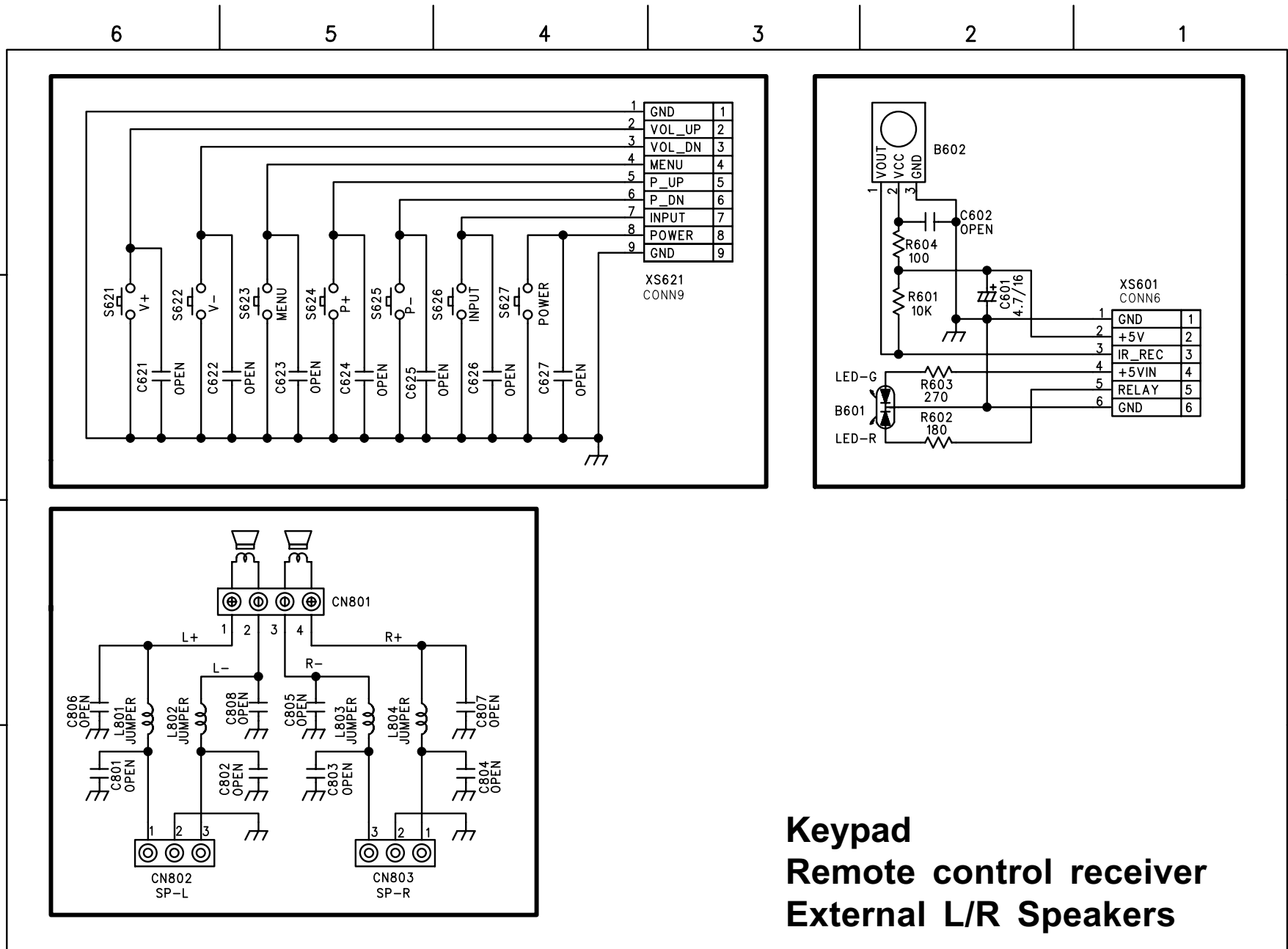
## GPIO DECIPTION

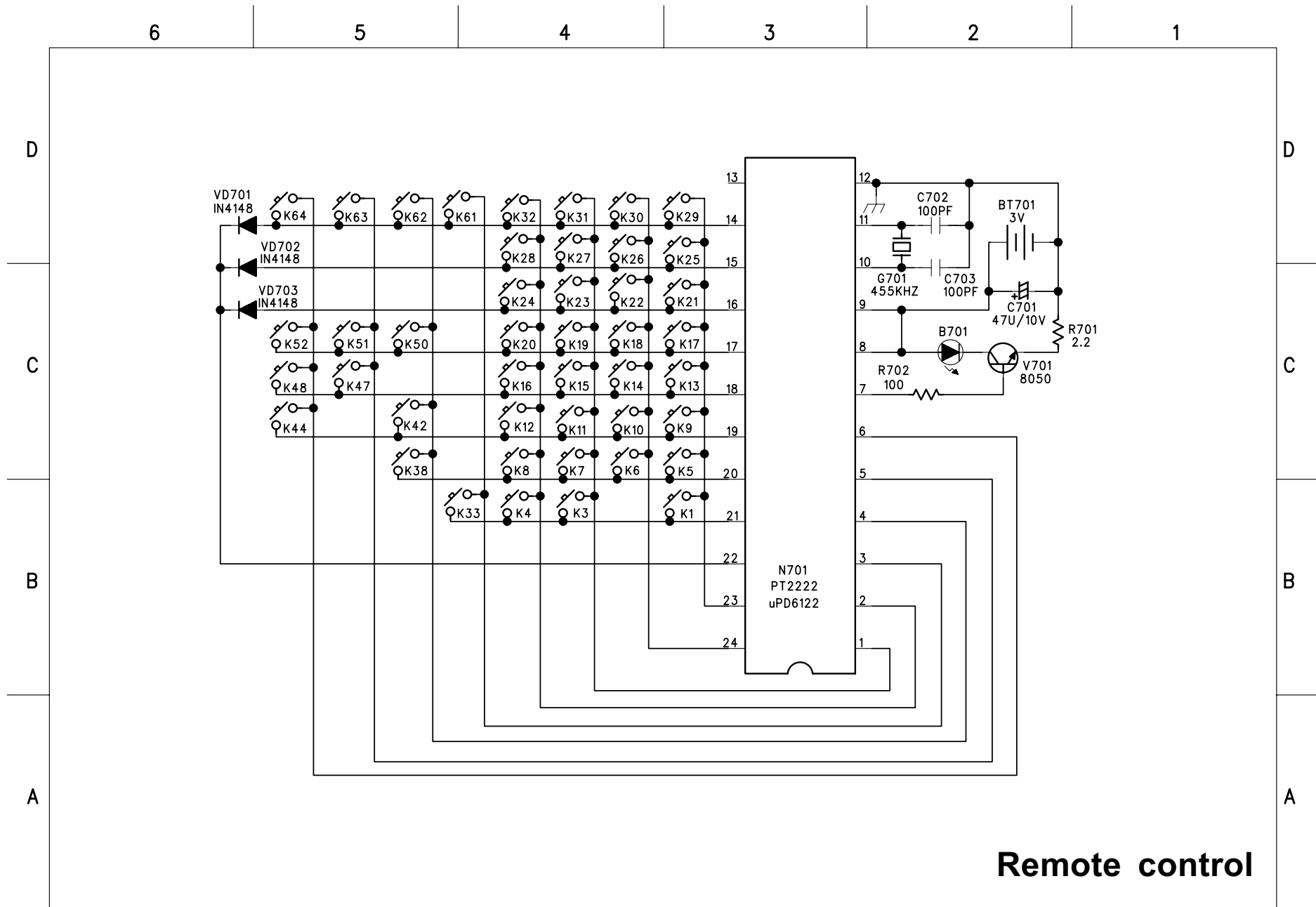
UP3\_4 : SW SCL  
 UP3\_5 : SW SDA  
 ERO0/UP3\_0 :KEYPAD POWER  
 ERO1/UP3\_1 : MAIN POWER SWITCH  
 VCLK : KEPAD CH+  
 GPIO19 : KEPAD CH-  
 DE/GPIO : DVD IR  
 CCIR\_CLK : PDP USE  
 CCIR\_V4 : PDP USE  
 GPIO0 : PDP USE  
 GPIO1 : NO USE  
 GPIO2 : LVDS POWER SW  
 GPIO3 : DTV POWER CONTROL  
 GPIO4 : EEPROM WRITE PROTECT  
 GPIO5/TXD : 2nd UART FOR MT5351  
 GPIO6/RXD : 2nd UART FOR MT5351  
 GPIO7 : AUDIO BYPASS MUTE CONTROL  
 GPIO8 : SPEAKER SWITCH  
 GPIO9 : AUDIO MUTE  
 GPIO10 : Indicates active video at HDMI port  
 GPIO11 : DVD POWER CONTROL  
 GPIO12 : AV SWITCH  
 GPIO13 : HDMI Hot Plug Detect  
**GPIO14 : NO USE**  
 GPIO[15..18] : FOR DVD CONTROL  
 GPIO/PWM0 : DIMMING  
 GPIO/PWM1 : BACKLIGHT ON/OFF  
 OUT\_27Mhz/GPIO : HDMI CRYSTAL  
 SDA1 : TO MT5351 I/F REQUEST  
 SCL1 : TO MT5351 I/F READY  
 F\_A21 : KEYPAD(LED RED)  
 ADCIN0 : KEYPAD  
 ADCIN3:PDP 5VD DETECT  
 ADCIN4:FOR TUNER AFC  
 CCIR\_V[0-3] : KEYPAD  
 CCIR\_V5 : AUDIO SWITCH  
 CCIR\_V6 : RESET DTV  
 CCIR\_V7 : YBPBR VIDEO SWITCH

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Title				
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## **Basic Operations & Circuit Description**

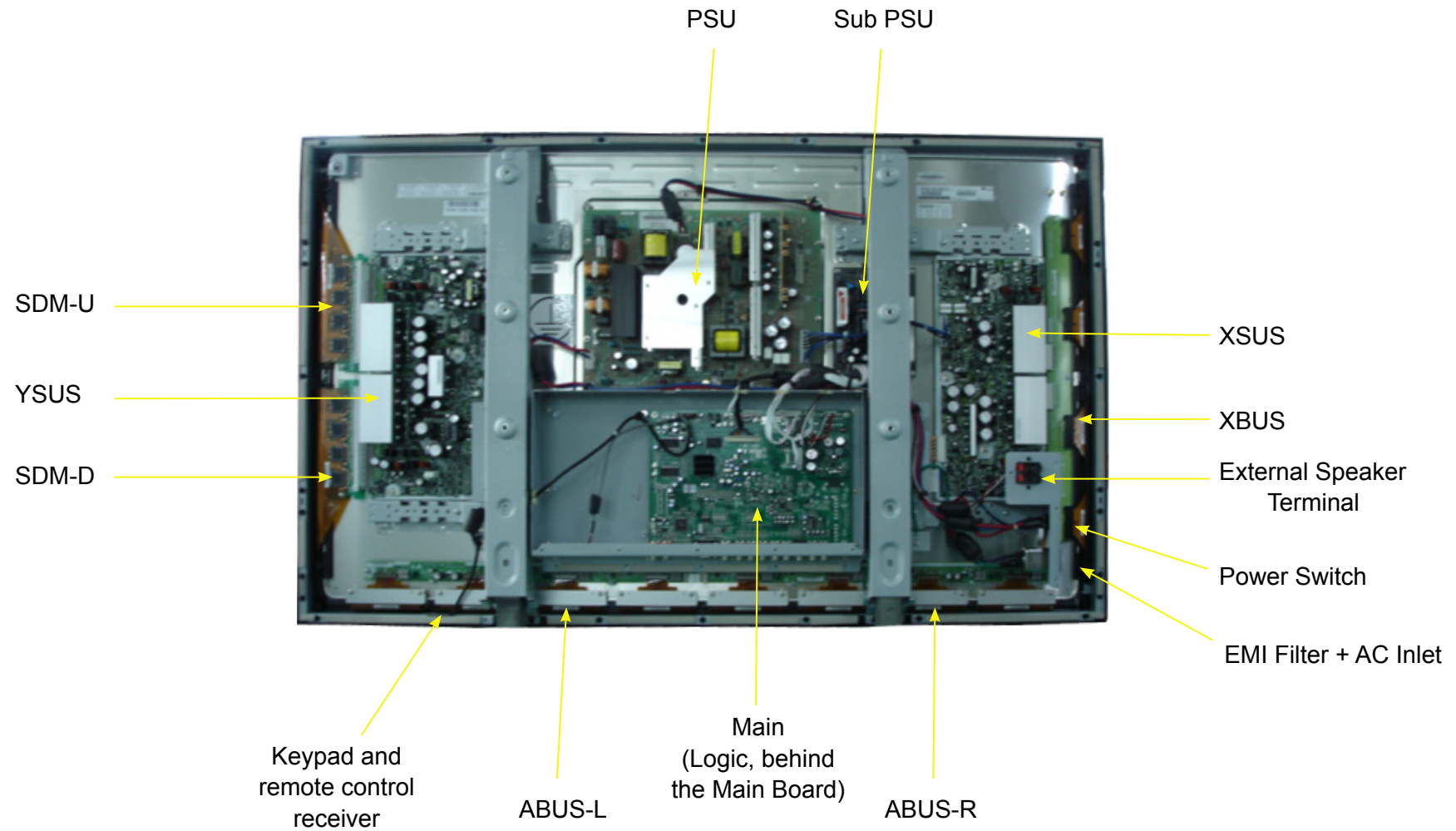
### **MODULE**

There are 1 pcs panel and 9 pcs PCB including 2 pcs X/Y Sustainer board, 1 pcs XBUS board, 1 pcs SDM-U board, 1 pcs SDM-D board, 2 pcs ABUS (L and R) board, 1 pcs Logic (Signal Input) board, and 1 pcs PSU board in the Module.

### **SET**

There are 5 pcs PCBs including 1 pcs Main board, 1 pcs Keypad board, 1 pcs Remote Control Receiver board, 1 pcs L/R Speakers and 1 pcs Sub PSU board in the SET.

## Parts position



## **Basic operation of Plasma Display**

- 1. After turning on power switch, PSU board sends 5Vst-by Volt to Main IC MT8202 waiting for ON signals from Key Switch or Remote Receiver.**
- 2. When the ON signal from Key Switch or Remote Receiver is detected, MT8202 will send ON Control signals to Power. Then Sub PSU sends 5Vsc, 9Vsc, 24V to PCBs working. This time Logic Board will send signals to Panel by X/Y SUS Board, OSD on the panel and display available signal. If the audio signals input, they will be amplified by Audio AMP and transmitted to Speakers.**
- 3. If some abnormal signals are detected (for example: over volts, over current, over temperature and under volts), the system will be shut down by Power off.**

## **PCB function**

- 1. PSU and Sub PSU:**
  - (1). Input voltage: AC 120V, 60Hz.**
  - (2). To provide power for PCBs.**
- 2. Main board: To converter S signals, AV signals, Y Pb/Cb Pr/Cr signals, HDMI signals and D-SUB signals to digital ones and to transmit to Control board.**
- 3. Logic board: Dealing with the digital signal for output to panel.**
- 4. Y-Sustainer / X-Sustainer board:**
  - (1). Receiving the signals from Logic and high voltage supply.**
  - (2). Output scanning waveform for Module.**
- 5. SDM-U and SDM-D board: Receive signal from Y sustainer, output horizontal scanning waveform to the panel.**
- 6. ABUS (L and R) extension board: Output addressing signals.**

## **PCB failure analysis**

- 1. LOGIC:**                   a. Abnormal noise on screen.   b. No picture.
- 2. MAIN :**                   a. Lacking color, Bad color scale.  
                                  b. No voice.  
                                  c. No picture but with signals output and OSD.  
                                  d. Abnormal noise on screen.
- 3. PSU and Sub PSU:** No picture, no power output.
- 4. X - Sustainer:** a. No picture.  
                                  b. Color not enough.  
                                  c. Flash on screen.
- 5. Y - Sustainer:** Darker picture with signals.
- 6. X/Y - Sustainer:** The component working temperature is about 55°C.  
If the temperature rises abnormal, this may be a error point.

## Main IC Information

- M13S128168A (ESMT)  
2M x 16 Bit x 4 Banks Double Data Rate SDRAM
- MT8202  
MT8202G is a highly integrated Single-Chip for LCD TV supporting video input and output format up to HDTV. It includes 3D comb filter TV decoder to retrieve the best image from popular composite signals.
- MT8293  
HDMI PanelLink Cinema Receiver
- R2S15102NP  
Digital Power Amplifier R2S15102NP
- WM8776  
24-bit, 192kHz Stereo CODEC with 5 Channel Input Multiplexer

# Panel Information

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## WARNINGS / CAUTIONS / NOTICES

TO PREVENT POSSIBLE DANGER, DAMAGE, AND BODILY HARM WHEN HANDLING THE PLASMA DISPLAY MODULE, PLEASE CONSIDER AND OBSERVE ALL WARNINGS, CAUTIONS AND NOTICES CONTAINED IN THIS SECTION.

This section is described based on the following two controls of EC:

1. EC Product Liability ( PL ) ( Council Directive 85/374/EEC of 25 July 1985 )
2. General Product Safety ( Council Directive 92/59/EEC )

Contents of this is not specification but the customer is requested to agree that FHP do not take any responsibility if the PDP is used beyond the contents of this and then lead to accident.

### Warnings

Failure to heed the following warnings when handling the PDP module could result in injury or even death:

1. Caution is required when handling the PDP module because it is controlled by very high voltage (approx. 300 V). If you need to handle the module while it is still operating or after it has just been powered off, guard against electric shock by never touching the module's drive circuitry areas or its metallic parts. The capacitors in the drive circuitry areas remain temporarily charged even after the power is turned off, and if the residual voltage is strong enough, it can cause electric shock. Therefore, after turning the power off, you must wait at least one minute before touching the module.
2. Do not use any other power supply voltage for the PDP module than the specified voltage in this product specification. Any deviation from the product specification could cause the product to fail.
3. Do not operate or install the PDP module under conditions that deviate from its environmental specification because doing so could result in electric shock or product failure. Inappropriate conditions include moisture, rain, or near water sources (such as a bath tub, laundry tub, kitchen sink, wet basement, swimming pool) and also near fire or heat sources (such as near or over a radiator or heat resistor or even direct sunlight or any setting where there is extreme heat).
4. If any foreign objects such as liquids (including water), metallic chips, or dust fall into the PDP module, immediately turn off the power supply voltage. Also, never push objects of any kind into the PDP module since they may come in contact with dangerous voltage points or create short circuits that could result in a fire hazard or electric shock.
5. If any smoke, offensive smell, or unusual noise comes from the PDP module and also the PDP screen does not display a picture after power-on or while operating, immediately turn off the module's power supply due to risk of electric shock. Never continue operating the PDP module under these conditions.
6. Do not disconnect or connect the PDP module's connector while the power supply is on or just after power-off due to risk of electric shock. Because the PDP module is operated by high voltage, the drive circuit capacitors remain temporarily charged even after the power is turned off. If you need to disconnect or connect the module, wait at least one minute after power-off.
7. Do not disconnect or connect the power connector if your hands are damp due to risk of electric shock.
8. Do not damage or modify the power cable of the PDP module due to risk of electric shock.
9. If the power connector is covered with dust or dirt, wipe it with a dry cloth before powering on the display. Because it could cause a fire hazard.



# FHP A3 PANEL DATASHEET

## Caution

Failure to heed the following cautions when handling the PDP module could result in personal injury or property damage:

1. Do not set the PDP module on an unstable, moving, or inclined surface. The PDP module could drop off and cause serious personal injury or damage the product.
2. If you need to relocate the PDP module, always turn off the power supply and detach the interface and power cables from the PDP module to avoid damaging the cable or dropping the module. A damaged cable could cause electric shock or a dropped PDP module could be damaged or cause personal injury. Also remember to watch your step while working.
3. When you remove or connect the PDP module's cable, you must turn off the power supply and securely hold the connector. If you forcibly remove the cable, the electric wire in the cable could be exposed or broken and could cause electric shock.
4. A minimum of two persons should carry the PDP module in order to avoid accidents or injury.
5. Do not touch the glass surface of the PDP module while it is operating because its temperature increases and could cause a burn injury.
6. The PDP module has a glass plate which is fragile. It has to be handled with care to avoid its breakage and injury of person.
7. If the glass surface breaks, do not handle the broken glass with bare hands since that could result in a cut or injury.
8. Do not place any object on the PDP module's glass surface because it can be scratched or broken.
9. Do not place any object on the PDP module because it could cause a personal injury if the module fell.

## Precautions Related to Usage of PDP Module

FUJITSU HITACHI PLASMA DISPLAY PDP module is intended for use in standard applications (computers, office automation and other office equipment, industrial, communications, and measurement equipment, personal or household devices, etc.). Customers considering the use of our products in special applications where failure or abnormal operation may directly affect human lives or cause physical injury or property damage, or where extremely high levels of reliability are demanded (such as aerospace systems, atomic energy controls, vehicle operating controls, medical devices for life support, etc.) are requested to consult with FUJITSU HITACHI PLASMA DISPLAY sales representatives before such use. The company will not be responsible for damages arising from such use without prior approval.

## Observance of Safety Regulations and Standards

Most countries in the world have established standards and regulations regarding safety, protection from electromagnetic interference, etc. Customers are requested to observe applicable regulations and standards in the design of products.

## Notice for System Designers

1. If the PDP module displays a fixed pattern on the screen, the Image-storage, which means a difference in the luminance between a fixed pattern area and the other areas caused by difference of temperature or discharge area, or the Image-burn-in, which means a difference in the luminance caused by degradation of the phosphor, might be occurred. In order to keep the picture quality, we recommend to use the valid display area of PDP module equivalently and also to use a screen-saver technique.
2. PDP module can be permanently damaged by application of stress (voltage, current, temperature, etc.) in excess of certain established limits, called absolute maximum ratings. Do not exceed these ratings.
3. Recommended operating conditions are normal operating ranges for the PDP module. All the device's electrical characteristics are warranted when operated within these ranges. Always use semiconductor devices within the recommended operating conditions. Operation outside these ranges may adversely affect reliability and could result in device failure. No warranty is made with respect to uses, operating conditions, or combinations not represented on the data sheet. Users considering application outside the listed conditions are advised to contact their FUJITSU HITACHI PLASMA DISPLAY sales representative beforehand.
4. The PDP module radiates infrared rays between 800 and 1000 nm so that it could cause an IR-remote controller of another electric system to misoperate. To avoid this, you should consider adding the IR absorption filter to your system.
5. The PDP module has a high-voltage switching circuit and a high-speed clock circuit. Therefore, you need to evaluate the EMC requirements of your system.
6. It should be considered in your mechanical design that the PDP module has a glass plate. Avoid excessive shock and stress to the glass surface and be careful not to damage the tip-tube at the corner of the glass plate. Damage to the glass plate or tip-tube could result in failure of the PDP module.
7. The PDP module is controlled by high voltage. While designing, remember that all voltage of the PDP module should be discharged immediately after power-off. And the power on sequence ( $V_{cc} \rightarrow V_a/V_s$ ) and the power off sequence ( $V_a/V_s \rightarrow V_{cc}$ ) are required.
8. Because the PDP module generates heat while operating, radiation and ventilation must be incorporated into your system design. The PDP module could fail if operated at temperatures outside of the specified ambient temperature.
9. The ventilation design of your system should be considered that foreign objects, which may prevent normal operation, would not touch to the PDP module because the PDP module has high-density and high-voltage electrical parts. Condensation or dust on the driver circuit could cause a short circuit or dielectric breakdown.
10. Based on the requirements of the safety standard (UL, EN etc.), be sure to add the filter that come up to the impact test to the glass pate.
11. The PDP screen is controlled with display-data signals and synchronized signals. If noise interferes with these signals, the PDP screen could become unstable. Therefore you may be required to take measures in order to reduce or minimize the effects of noise when you will design.
12. PDP module has an inherent chance of failure. You must protect against injury, damage or loss from such failures by incorporating safety design measures into your facility and equipment such as redundancy and prevention of over-current levels and other abnormal operating conditions.
13. The thermal management, Image Storage, and Image Burn-In should be considered when you design and evaluate the system.
14. Please make careful evaluation of EMC characteristics when you design the system.

## Notice of Operation and Handling of the PDP Module

1. If the PDP module displays a fixed pattern on the screen, it can make a difference in the luminance and chromaticity between a fixed pattern area and the other areas. This phenomenon can be recovered by using the valid display area of PDP module equivalently. However, if the fixed pattern is displayed repeatedly for extended periods of time, then a difference in the luminance and chromaticity could not be recovered. Therefore if you intend to display fixed patterns, a screen-saver technique should be incorporated into your system to minimize image retention.
2. The PDP module is controlled by high voltage. While operating the module and immediately after powering it off, never disconnect or connect the module's power connector because this could cause a failure. If you need to disconnect or connect the module, wait at least one minute after power-off.
3. If you watch the PDP screen for a long period of time, your eyes may become fatigued. It is recommended that you rest your eyes occasionally. With the limited knowledge currently available there is no indication that there is a potential risk of eye damages while watching a working PDP module for a long period of time.
4. To ensure reliable operation of the PDP module and to protect it from overheating, never wrap or cover the module with anything. Also, never place the PDP module in a confined space or any place that has poor ventilation.
5. To prevent a defect or failure, be sure to check the cable connections and power supply condition before power-on.
6. To avoid possible electric shock, make sure the power supply voltage of the PDP module is turned off before cleaning. To clean the PDP module's glass panel, apply water or a natural detergent to a piece of soft cloth or gauze. Make sure that no water comes in contact with the connecting terminals on the side of the glass panel. Never use chemical solvents, such as paint thinner or benzene, to clean the glass panel.
7. The PDP module is composed of several materials such as glass, metals, and plastics. To dispose of the module, you should consult a qualified service engineer.
8. The PDP module is equipped with various protection circuits that automatically turn the module off if an interface signal or the power voltage becomes abnormal while it is operating. If the PDP module suddenly stops operating while it is on, check the input signal and power source conditions before restarting it.
9. If an abnormal situation occurs, such as if the input connector becomes disconnected, the PDP module will go into stand-by and the high output voltage will stop even if external power is supplied. If a normal signal is input after this happens, operations will resume. Moreover, if the PDP module is operating normally and an abnormal situation occurs, normal operation will resume with the re-inputting of a normal signal.
10. Do not place any equipment that generates excessive EMI/RFI noise near the interface cable of the PDP module and try to keep all cables as short as possible.
11. Be careful not to break the glass panel when handling the PDP module. Also, wear gloves or other hand protection when handling the module in order to prevent injuries that can occur if the glass panel breaks.
12. Do not recombine, restructure or disassemble the PDP module. The glass panel section and drive circuit section of the PDP module are closely connected and function as a pair. If the module is arbitrarily recombined, restructured, or disassembled, FUJITSU HITACHI PLASMA DISPLAY will not be responsible for the function, quality, or operational integrity of the modified module.
13. When delivering or transporting the PDP module, protect the module from excessive vibration or shock. If the module is dropped or if excessive vibration or shock is applied to it, the glass panel of the PDP module could break and the drive circuit could become damaged. All packaging for delivering or transporting the module should be designed for reliable shipping.

## FHP A3 PANEL DATASHEET

14. The information and circuit diagrams in this document are presented as examples of display applications, and are not intended to be incorporated in devices for actual use. Also, FUJITSU HITACHI PLASMA DISPLAY is unable to assume responsibility for infringement of any patent rights or other rights of third parties arising from the use of this information or circuit diagrams.
15. If any products described in this document represent goods or technologies subject to certain restrictions on export under any of applicable laws or regulations, the prior authorization by such applicable governments will be required for export of those products.
16. PDP module uses semiconductor devices. Because semiconductor devices are particularly susceptible to damage by static electricity, you must take the following precautions when transporting, delivering, or handling the module: Eliminate static body electricity by the use of rings or bracelets connected to ground through high resistance (on the level of  $1M\Omega$ ). Wearing of conductive clothing and shoes, use of conductive floor mats and other measures to minimize shock loads is recommended. Ground all fixtures and instruments, or protect with anti-static measures. Also, when transporting or delivering the PDP module, always put it in an anti-static bag.
17. When high-voltage charges exist close to PDP module, discharges can cause abnormal operation. In such cases, use anti-static measures or processing to prevent discharges.
18. Exposure to corrosive gases (e.g. in the case material containing sulphur compound is used in the set or the set is used in the coastal area) or contact with oil may lead to chemical reactions that will adversely affect the device. If you use PDP module in such conditions, consider ways to prevent such exposure or to protect the PDP module..
19. PDP module is not designed for environments involving exposure to radiation or cosmic radiation. Users should provide shielding as appropriate.
20. PDP module uses plastic molded devices. However these devices are flammable, and therefore should not be used near combustible substances. If devices begin to smoke or burn, there is danger of the release of toxic gases.
21. The recommended operating conditions are required in order to ensure the normal operation of the PDP module. PDP module's electrical characteristics are warranted when the module is operated within these ranges. Always use PDP module within their recommended operating condition ranges. Operation outside these ranges may adversely affect reliability and could result in module failure.
22. Electrodes on a glass surface of the PDP module and PCB are connected by flexible cable. Therefore, do not inflict excessive stress on the glass surface, PCB, and flexible cable, such as shock, vibration, bending, heat-shock, pressing, or striking. These actions could break or damage to PDP module.
23. The contents of this document are described for the products with the initial parameter setting at shipment, if there is no special notice.
24. The glass surface of the display is cleaned up before shipping, but if there is fine dust etc., please use this product after removing. When it is needed to clean the surface of the glass panel in the customer due to any dust and dirt, please use soft cloth with detergent to wipe them off and do not use the chemicals like acid, alkali and organic solvent..



# FHP A3 PANEL DATASHEET

## Storage of PDP Module

1. When storing the PDP module, select an environmentally controlled place. Also, avoid any environment that exceeds the module's temperature or humidity specifications. Sometimes the PDP module does not discharge easily after long storage. In this case, about 2 hours full white display (aging) is recommended. Please execute aging one time at half a year.
2. Avoid exposure to rapid temperature changes, which cause moisture to condense inside the product. Store products in locations where temperature changes are slight.
3. Avoid storing packages where they are exposed to corrosive gases or high levels of dust.
4. When transferring the PDP module by a forklift or crane, the only eligible person to operate them can do this work.

## Repair and Maintenance

The repair and maintenance of this product cannot be held at user site locally as this product is manufactured with various kinds of test and adjustment. This issue has to be determined separately from this specification.

## Other

1. Customers considering the use of FUJITSU HITACHI PLASMA DISPLAY products in other special environmental conditions should consult with FUJITSU HITACHI PLASMA DISPLAY sales representatives.
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## 106cm(42-inch) High Definition Plasma Display Module Product Specification

### 1. Description

This specification manual applies to the 106cm(42-inch) high definition plasma display module.

This module utilizes ALIS method (Alternate Lighting of Surfaces method; originally developed by FUJITSU LIMITED) to realize high definition picture with interlaced signal input.

All specifications of which condition is not described are specified with initial parameter setting as shipment at room temperature ( $T_a=20\pm 5^{\circ}\text{C}$ ).

### 2. Product Name and Model Number

(1) Product name: 106cm(42-inch) high definition plasma display module (abbreviation: PDP module)

(2) Product model number: FPF42C128128UE-51

### 3. Block Diagram

Figure 1 is a block diagram of this PDP module.\*

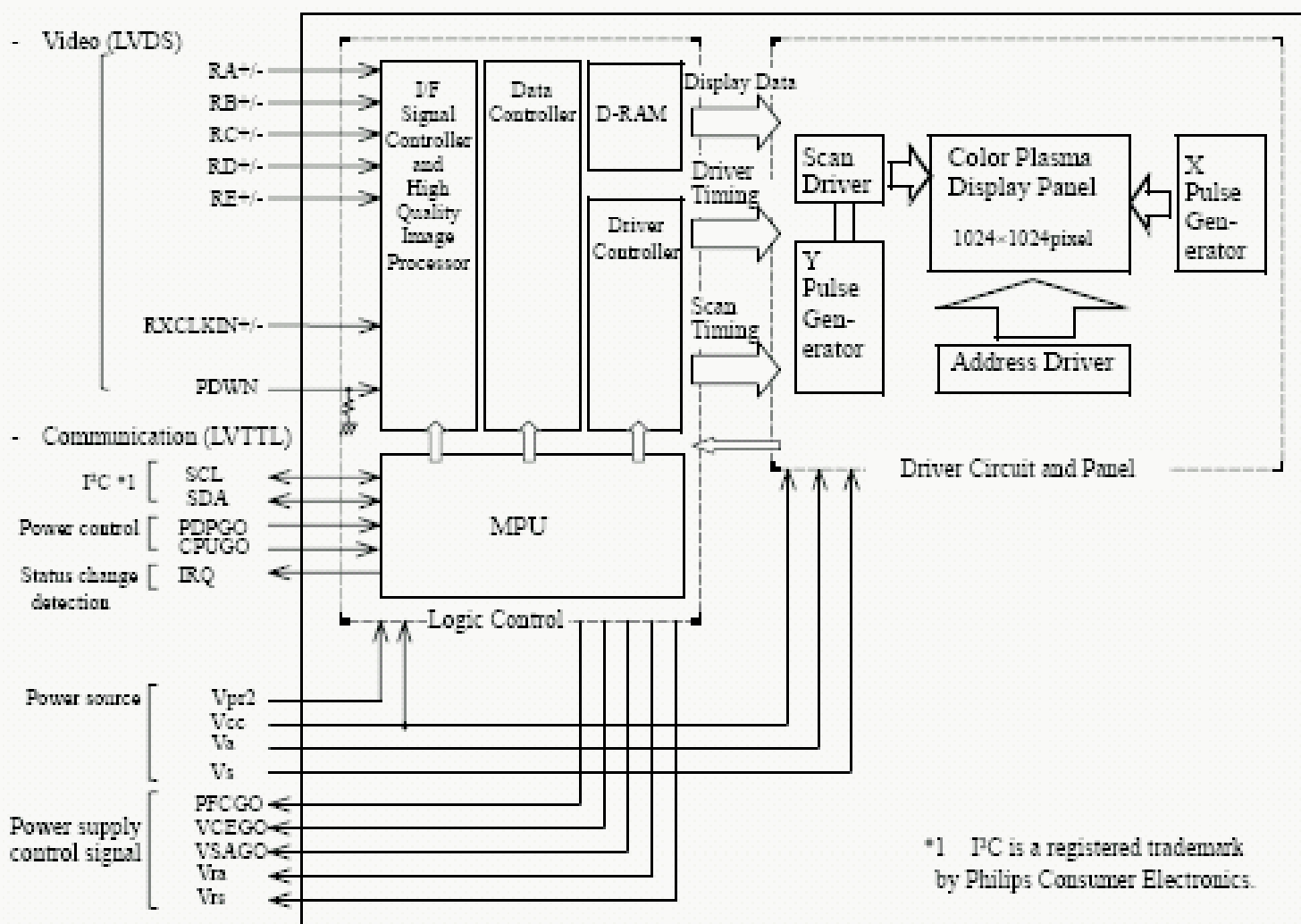


Figure 1. Block Diagram

4. Display Characteristics

4.1 Display Performance

(outgoing specification)

No.	Item	Ratings					
1	Display pixels	Horizontal 1,024 × Vertical 1,024 pixels (1 pixel = 1RGB sub pixel) Interlaced display					
2	Display sub pixels	Horizontal 3,072 × Vertical 1,024 sub pixels					
3	Pixel pitch	Horizontal 0.90 mm × Vertical 0.51 mm					
4	Sub pixel pitch	Horizontal 0.30 mm × Vertical 0.51 mm					
5	Display pixel Form	RGB Stripe (refer to Figure 2)					
6	Effective Display Size	Horizontal 921.60 mm × Vertical 522.24 mm (diagonal 42 inches)					
7	Aspect Ratio	16 : 9					
8	Number of Colors	16.77 million colors					
9	Luminance *1,*2	Condition		Min.	Typ.	Max.	Unit
		Peak white ; Max. gradation setting, display rate: 1% , Vsync = 50/60 Hz		-	(1,400)	-	cd/m <sup>2</sup>
		Averaged value of 9-locations 160 gray scale level (Gamma=1) at chromaticity measurement pattern. *5		700	890	-	
10	Chromaticity *1,*3	Averaged value of the 9-locations 160 gray scale level (Gamma=1) at chromaticity measurement pattern. *5	x	0.265	0.285	0.305	
		Vsync = 50/60 Hz	y	0.275	0.295	0.315	
11	Contrast *1,*4 calculated value.	Peak white, display rate: 1%, In dark room Vsync = 50/60 Hz		-	(3,000):1	-	
		160 gray scale level (Gamma=1) Averaged value of 9-locations *5, In dark room Vsync = 50/60 Hz		1200* ±	1750:1	-	
12	Streaking *1,*5	Full screen white, Max. gradation setting, Vsync = 50/60 Hz		-	3	-	%

Notes:

- \*1• Measured at following conditions.
  - (a) Measuring equipment: Minolta CA-100
  - (b) All PC parameters are initial setting.
  - (c) Measured in 5 minutes after turning on the PDP module.
- \*2 The Luminance with the display ratio of 1%(H:10%,V:10%,center) is for a reference because it is not actually measured one but extrapolated one from that at chromaticity measurement pattern. • Averaged value of the 9-locations is measured according to the figure of “Chromaticity measurement pattern” described in page 14 (Display ratio:10%).
- \*3 Chromaticity is measured according to the figure of “Chromaticity measurement pattern” described in page 14 (Display ratio:10%) and the averaged value of the 9-locations satisfies the specification.

\*4 Contrast ratio with the display ratio of 1% is for a reference. Contrast ratio is calculated from the following equation .

$$\text{Contrast} = \frac{\text{Averaged Luminance of the 9-locations (10\%)}}{\text{All black Luminance}}$$

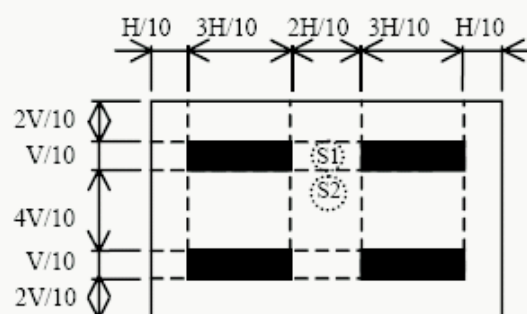
## FHP A3 PANEL DATASHEET

\*5 The chromaticity measurement pattern is the same as the chromaticity uniformity measurement pattern shown at "Display Quality" paragraph.

\*6 Streaking measurement pattern is shown as below.

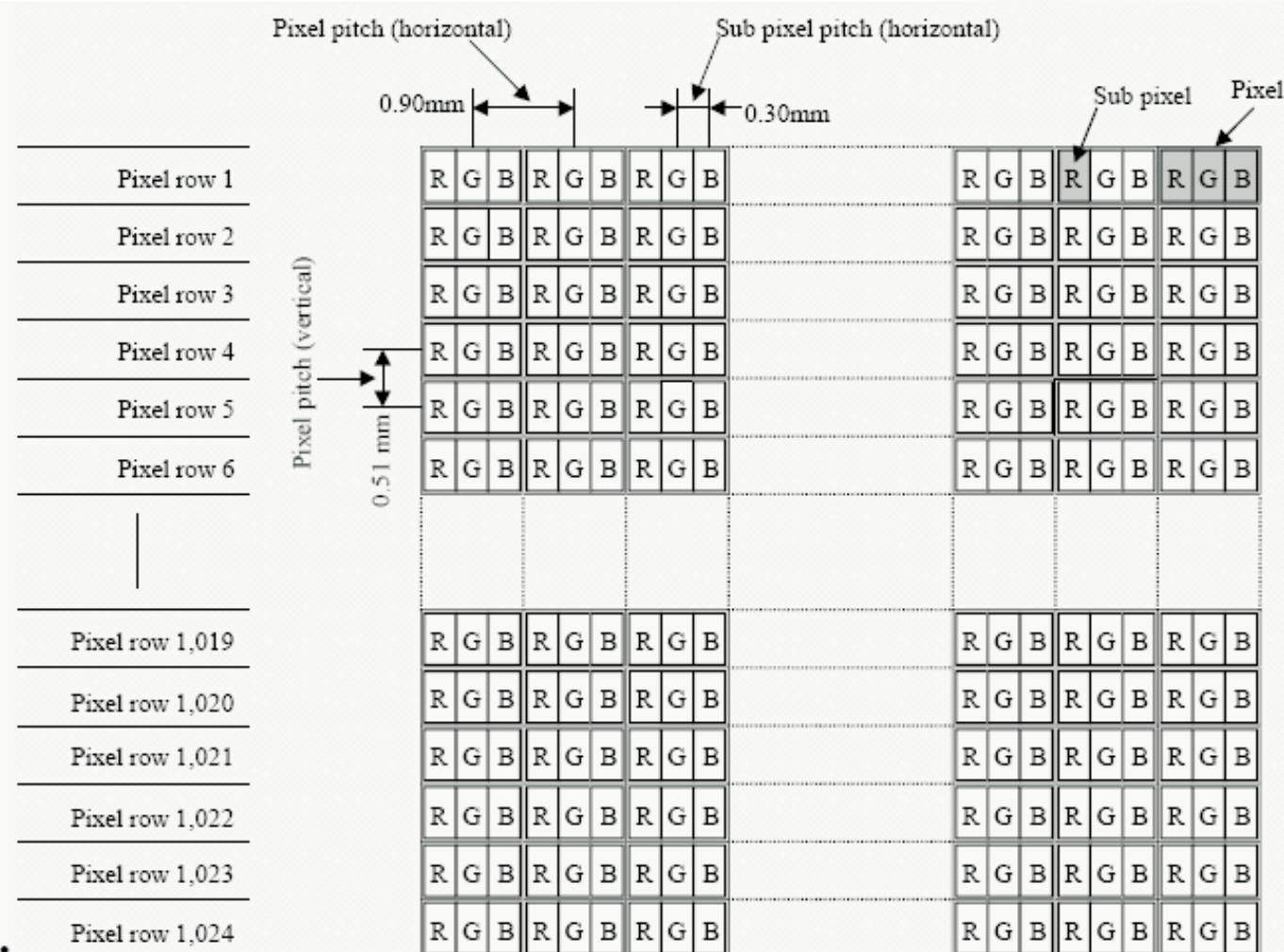
Streaking is defined as following equation, however this value is not managed in the factory.

$$\text{Streaking} = \frac{(\text{Luminance at S1}) - (\text{Luminance at S2})}{(\text{Luminance at S1})} \times 100\%$$



Streaking measurement pattern

Pixel column 1	Pixel column 2	Pixel column 3	.....	Pixel column 1022	Pixel column 1023	Pixel column 1024
----------------	----------------	----------------	-------	-------------------	-------------------	-------------------



**Figure 2. Display Pixel Form**



# FHP A3 PANEL DATASHEET

## 4.4 Noise

Condition	Specification
<ul style="list-style-type: none"><li>- Measurement at 1 m from the front center of panel</li><li>- Background noise : less than 18 dB (A)</li><li>- Noise meter : Digital Frequency Analyzer Type 2131 (Bruel &amp; kjaer)</li><li>- Environmental condition : 1013 hPa</li></ul>	Less than 25dB (A)

## 4.5 Mechanical Specification

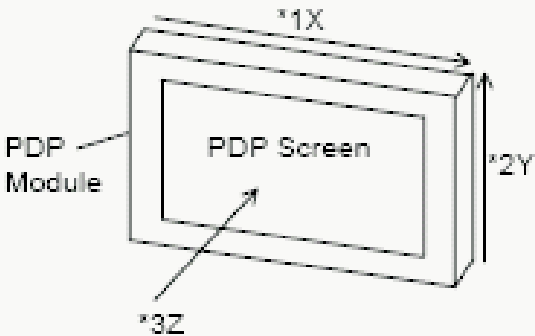
No.	Item	Rating
1	Maximum Outer Dimensions	Width 994 mm × Height 587* * *Thickness 66 mm (See Figures 8.1 and 8.2.)
2	Weight	Approx. 16 kg

## 4.6 Mechanical Characteristics

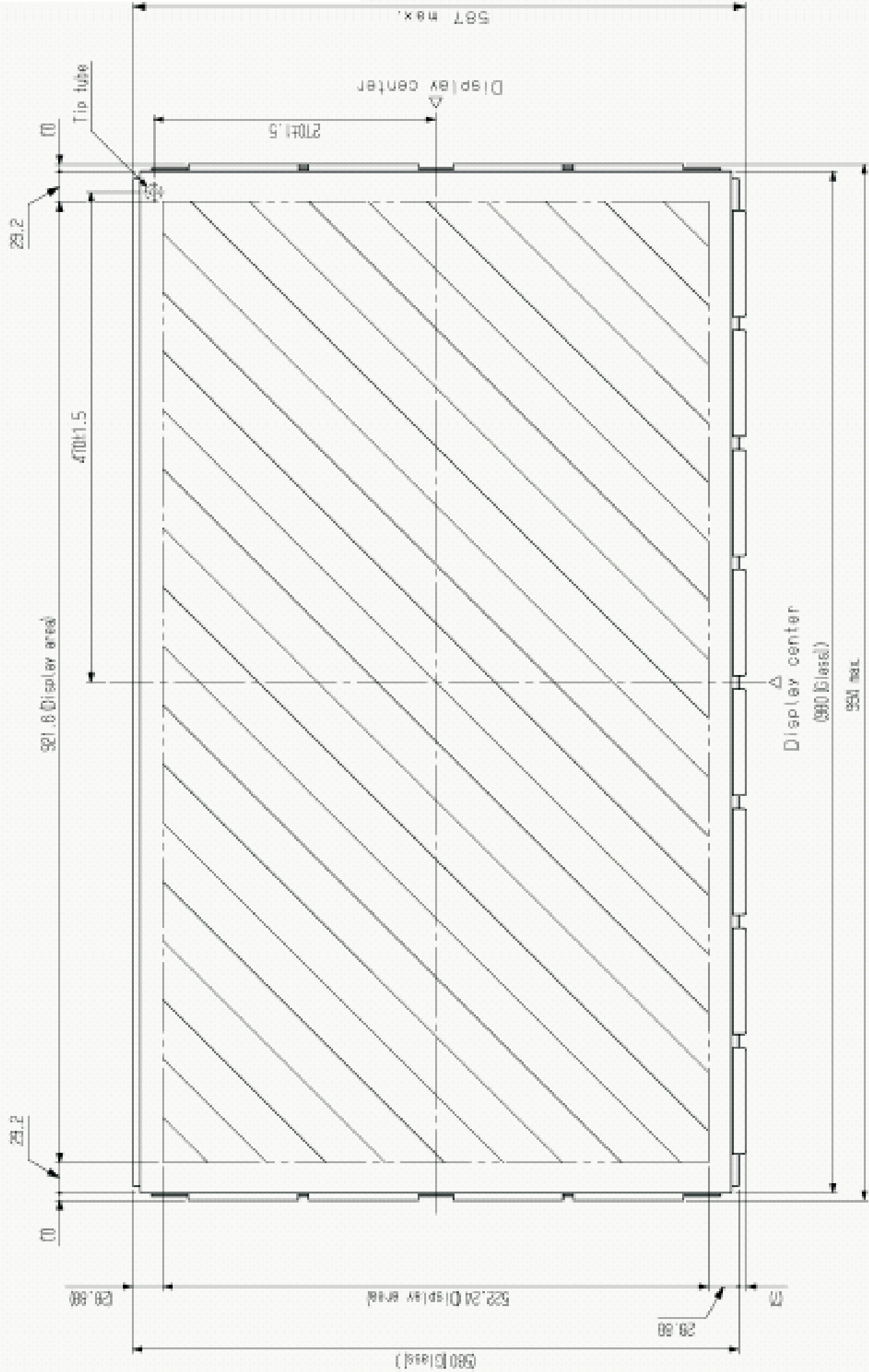
No.	Item	Rating		Remarks
1	Vibration	Operational and Non-operational	Support: Secured to the rigid body at 8 positions on the back. Frequency: 10 to 55 Hz Sweep: 1 minute/octave Amplitude: 0.350 mm-p (X direction *1) 0.350 mm-p (Y direction *2) 0.175 mm-p (Z direction *3) Time: 30 minutes	Vibration-test condition is based on the EN60065 without the Z-direction.
2	Shock	Not operating	Support : Secured to the rigid body at 8 positions on the back. Acceleration : 98m/s² [10G], Time: 11ms (Z direction *3) 196m/s² [20G], Time: 11ms (X and Y directions *1,*2) Number of times : Once	

Notes: \*1, \*2, \*3      Vibration and shock directions are shown below:

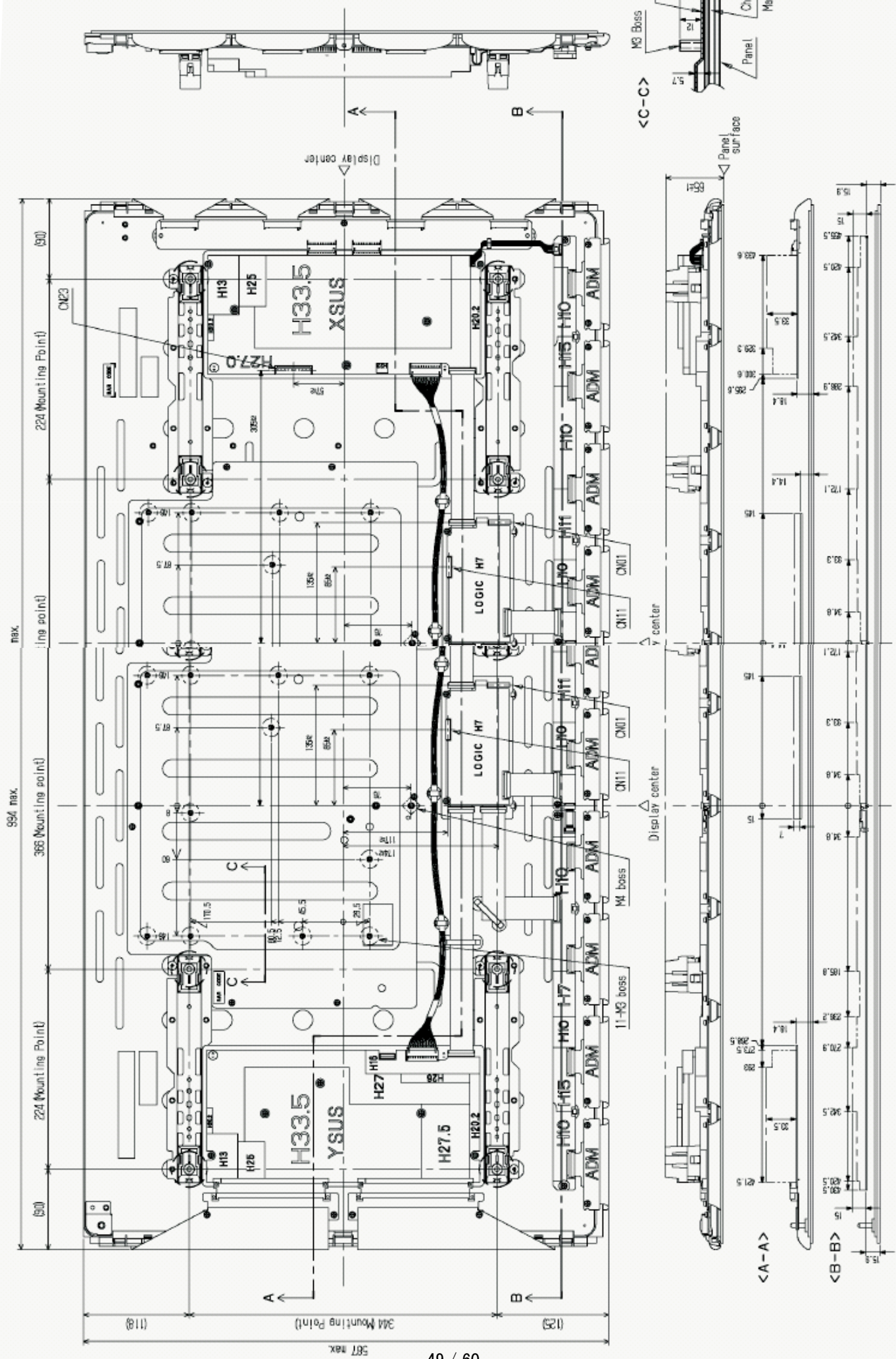
After the vibration and shock test as indicated in the table above, this product still has to comply with the quality items described in Display Quality section (4.2).



FHP A3 PANEL DATASHEET



# FHP A3 PANEL DATASHEET



# Spare Part List

**PDP4273M**  
**N**

Item	Part Number	Part Description	Usage / unit	Unit	Key/Spare
	PDP421DMIA1BS-E01	AKAI PDP42" (PDP4273M) S-MT8202/FHP 42" 120V/60HZ USA MONITOR BLACK			
1>	510-421D11-03AKA	CARTON BOX AKAI ENG PDP4273M (S-MT8202) FHP PANEL USA K(QIAN SE)	1.000000	Piece	K
2>	518-421D01-01K	BOTTOM BOX 421D K	1.000000	Piece	K
3>	580-421D1A-02APA	IB E FOR AKAI PDP4273M+PIP FHP (A3) (S-MTK8202) USA QIANSE	1.000000	Piece	K
4>	E7501-056001	REMOTE CONTROL K001 "AKAI" 34KEYS MT8202 PDP MONITOR USA BLACK	1.000000	SET	K
5>	771E421D02-01	MAIN PCB ASSY S-MT8202 (FHP) (MONITOR) USA	1.000000	SET	K
6>	200-42D141-SMK11A	FRONT CABINET BLACK W/AKAI ( W/O BBE & HDMI SILK) ENG 421D (S-PW181) 4273M A	1.000000	Piece	S
7>	244-34B811-01	GIFT BOX HANDLE 34B8	2.000000	Piece	S
8>	248-46D201-01	HANDLE FOR PLASMA BLACK	2.000000	Piece	S
9>	267-46SD01-01S	POWER LENS 46SD S	1.000000	Piece	S
10>	269-46SD01-01S	REMOTE LENS 46SD S	1.000000	Piece	S
11>	277-46SD01-03S	FUNCTION KNOB BLACK(SA-598) S	1.000000	Piece	S
12>	300-42SD03-02C	POLYFOAM TOP 421D	1.000000	Piece	S
13>	300-42SD04-02C	POLYFOAM BOTTOM	1.000000	Piece	S
14>	300-42SD05-01C	POLYFOAM SHEET 421D	2.000000	Piece	S
15>	310-041104-01V	POLYBAG 4"X11"X0.04 AV	1.000000	Piece	S
16>	310-111404-07V	POLYBAG 11"X14"X0.04 FV	1.000000	Piece	S
17>	310-504505-01T	POLYBAG 50"X45"X0.5MM W/MU/ TI LANGUAGE WARING &RECYCLE &HOLE	1.000000	Piece	S
18>	329-053010-70	SPONGE 530X10X7.0MM W/ ADHESIVE	2.000000	Piece	S

# Spare Part List

**PDP4273M  
N**

19>	329-095510-70	SPONGE 955X10X7.0MM W/ ADHESIVE	2.000000	Piece	S
20>	364-42SD01-01H	REMOTE LENS PVC	1.000000	Piece	S
21>	384-42D103-SMU06H	PVC SHEET FOR TERMINAL (S- MT8202) W/O INFRARED TERMINAL USA H	1.000000	Piece	S
22>	387-421D01-03AHA	MODEL PLATE AKAI ENG PDP4273M (S-MTK8202) FHP PANEL USA H (V:JIALI)	1.000000	Piece	S
23>	388-42D103-01H	CAUTION PLATE ENG 42D1 H	1.000000	Piece	S
24>	388-42SB02-01H	SPK PLATE MAIN SANSUI 42" 42SB H	1.000000	Piece	S
25>	388-42SB04-01H	POWER PLATE SANSUI 42SB H	1.000000	Piece	S
26>	388-42SD01-01	PC SHEET FOR KEY PCB	1.000000	Piece	S
27>	388-42SD02-01	PC SHEET FOR REMOTE PCB	1.000000	Piece	S
28>	402-42D108-01S	BACK COVER	1.000000	Piece	S
29>	423-42SJ07-01S	POWER BKT 42SJ S	1.000000	Piece	S
30>	426-42AA0C-01S	BKT FOR FHP PANEL POWER PCB 42AA S	1.000000	Piece	S
31>	436-421D06-01S	TERMINAL SHEET FOR MTK 8202 MINITOR (4273M)	1.000000	Piece	S
32>	481-42D108-01S	SHIELD BOX BOTTOM FOR MTK 8202 (421D)	1.000000	Piece	S
33>	483-42D103-01	SHIELD COVER FOR E-ROOM PCB 42D1	1.000000	Piece	S
34>	512-421D01-01	SHEET 1182X1316	.666700	Piece	S
35>	553-002007-25A	SHIELD GASKET 20X7X2.5MM W/ CONDUCTIVE ADHESIVE	6.000000	Piece	S
36>	553-002509-25A	SHIELD GASKET 25X9X2.5MM W/ CONDUCTIVE ADHESIVE KI JD-60	2.000000	Piece	S
37>	553-005009-25A	SHIELD GASKET 50X9X2.5MM W/ CONDUCTIVE ADHESIVE KI JD-60	1.000000	Piece	S

# Spare Part List

**PDP4273M  
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38>	553-006009-25A	SHIELD GASKET 60X9X2.5MM W/ CONDUCTIVE ADHESIVE	4.000000	Piece	S
39>	553-008009-10A	SHIELD GASKET 80X9X1.0MM	4.000000	Piece	S
40>	553-009509-10A	SHIELD GASKET 95X9X1.0MM	1.000000	Piece	S
41>	553-010509-10A	SHIELD GASKET 105X9X1.0MM W/ CONDUCTIVE ADHESIVE	1.000000	Piece	S
42>	553-011009-25A	SHIELD GASKET 110X9X2.5MM W/ CONDUCTIVE ADHESIVE	4.000000	Piece	S
43>	553-012509-25A	SHIELD GASKET 125X9X2.5MM	8.000000	Piece	S
44>	553-013509-10A	SHIELD GASKET 135X9X1.0MM	1.000000	Piece	S
45>	553-020009-25A	SHIELD GASKET 200X9X2.5MM	4.000000	Piece	S
46>	553-039509-25A	SHIELD GASKET 395X9X2.5MM W/ CONDUCTIVE ADHESIVE	1.000000	Piece	S
47>	553-039509-40A	SHIELD GASKET 395X9X4.0MM W/ CONDUCTIVE ADHESIVE	2.000000	Piece	S
48>	553-056009-40A	SHIELD GASKET 560X9X4.0 W/ CONDUCTIVE ADHESIVE	2.000000	Piece	S
49>	553-095009-40A	SHIELD GASKET 950X9X4.0 W/ CONDUCTIVE ADHESIVE	2.000000	Piece	S
50>	554-080030-01	SHIELD CLOTH 80X30MM W/ CONDUCTIVE ADHESIVE KI JD-59	1.250000	Piece	S
51>	563-119-	SERIAL NO. LABEL	1.000000	Piece	S
52>	568-P46T02-02	WARNING LB ENG 42SF NIL	1.000000	Piece	S
53>	579-421D01-01	BAR CODE LABEL (W/SERIAL NO) ENG PDP4273M USA	2.000000	Piece	S
54>	579-42D102-09	SERIAL NO/BAR CODE LABEL 42D1	1.000000	Piece	S
55>	579-42D103-02	ON/OFF LB ENG 42D1 NIL	1.000000	Piece	S
56>	579-42D105-01	PROTECTIVE EARTH LABEL FOR ESA 42TD1	1.000000	Piece	S
57>	579-50AA02-01	DANGER CAUTION LABEL	1.000000	Piece	S

# Spare Part List

**PDP4273M**  
**N**

58>	590-421D01-01	WARRANTY CARD AKAI ENG PDP4273M USA	1.000000	Piece	S
59>	593-421D01-10APA	AKAI INSERTION CARD ENG PDP4273M(S-MT8202) USA P (QIAN SE)	1.000000	Piece	S
60>	734-BM1501-01	SECC STAND BASE 421D (COST DOWN) W/O PACKING SILVER	1.000000	SET	S
61>	900-420204-02A	DISPLAY FILTER 42" SSC FOR FHP 972X560X3.2 (L3-COATING TYPE) )	1.000000	Piece	S
62>	E3219-002003	EI I LET EMI FILTER WIT WIRES IOSSI-R-Q(B) HIGH&LOW	1.000000	Piece	S
63>	E3301-028005	TERMINAL PUSH WP4-15B	1.000000	Piece	S
64>	E3404-157004	AC CORD UL 1.88M (YY-3/ST3 YUNBIAO)	1.000000	Piece	S
65>	E3421-925020	WIRE ASSY 300MM 3WIRES FOR 42 LCD POWER CONNECT	1.000000	Piece	S
66>	E3421-925057	WIRE ASSY 2.0 9P/9P L=150MM FOR (FHP MAIN POWER TO DIF BOARD)	1.000000	Piece	S
67>	E3421-925058	WIRE ASSY 3.96 8P/8P L=230MM FOR (FHP MAIN POWER TO XSUS BOARD)	1.000000	Piece	S
68>	E3421-926127	WIRE ASSY P2.5 5P/3P+3P L=600/600 FOR SPK W/EMI	1.000000	Piece	S
69>	E3421-926128	WIRE ASSY 6P/4P+10P P2.5 24V9V L=270 W/EMI FOR (FHP) MT8202	1.000000	Piece	S
70>	E3421-926129	WIRE ASSY 5P/11P P2.5 5V L=300 W/EMI FOR (FHP) MT8202	1.000000	Piece	S
71>	E3421-926130	WIRE ASSY 5P/7P P2.5 5VSB L=150 W/EMI FOR (FHP) MT8202	1.000000	Piece	S
72>	E3421-927007	WIRE ASSY 6P L=900MM EMI FOR (FORMOSA)	1.000000	Piece	S
73>	E3421-927008	WIRE ASSY 3P L=450 AC CORD FORMOSA EMI	1.000000	Piece	S
74>	E3471-004006	WIRE ASSY LVDS 30P/30P P1.25 L=350 W/EMI FOR(FHP) MT8202	1.000000	Piece	S
75>	E4101-027001	SWITCH POW MR-22-N2BB-F2 ROCKET	1.000000	Piece	S
76>	E6205-42BD01	DISPLAY PDP42" FHP FPF42C128128UE-51/IP W/O PSU	1.000000	Piece	S



# Spare Part List

**PDP4273M**  
**N**

77>	E7301-010002	BATTERY AAA R03P1.5V <2>	2.000000	Piece	S
78>	E7801-200001	PCB ASSY PSU MAIN FPF23P-100/240A MURATA	1.000000	SET	S
79>	E7801-P01501	PCB ASSY PSU PDP 5V/9V/24V FOR (FHP) MT8202 MEGMEET	1.000000	SET	S
80>	771B421D01-01	IR RECEIVE PCB ASSY FOR PDP4273M	1.000000	SET	S
81>	771K421D01-01	KEY PCB ASSY FOR PDP4273M	1.000000	SET	S
82>	786-421D01-01	SPK ASSY FOR 421D(4273M) SILVER	1.000000	SET	S



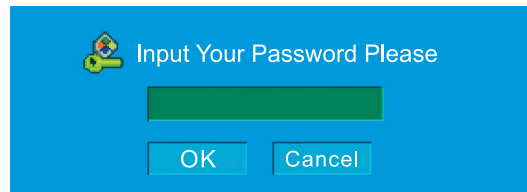


# If you forget your V-Chip Password

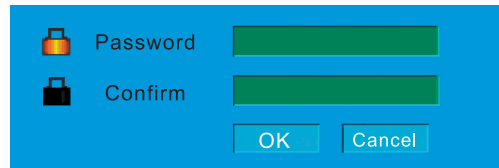
- Omnipotence V-Chip Password: 8202.

Using the “Change Password” item

- ❶ When enter the “V-Chip” menu, select “Change Password”.
- ❷ Press ▲ or ▼ button to highlight the “Change Password” item.
- ❸ Press **Enter** button to confirm and pop up a menu.



- ❹ Use 0~9 buttons input the omnipotence password(8202), then Press **Enter** button to enter and pop up a menu.



- ❺ Use 0~9 buttons input your new password.
- ❻ Press ▼ button to move to confirm blank.
- ❼ Use 0~9 buttons input your new password again.
- ❽ Press **Enter** button to confirm

-Suggest: Change to your familiar Password again.

# Software Upgrade

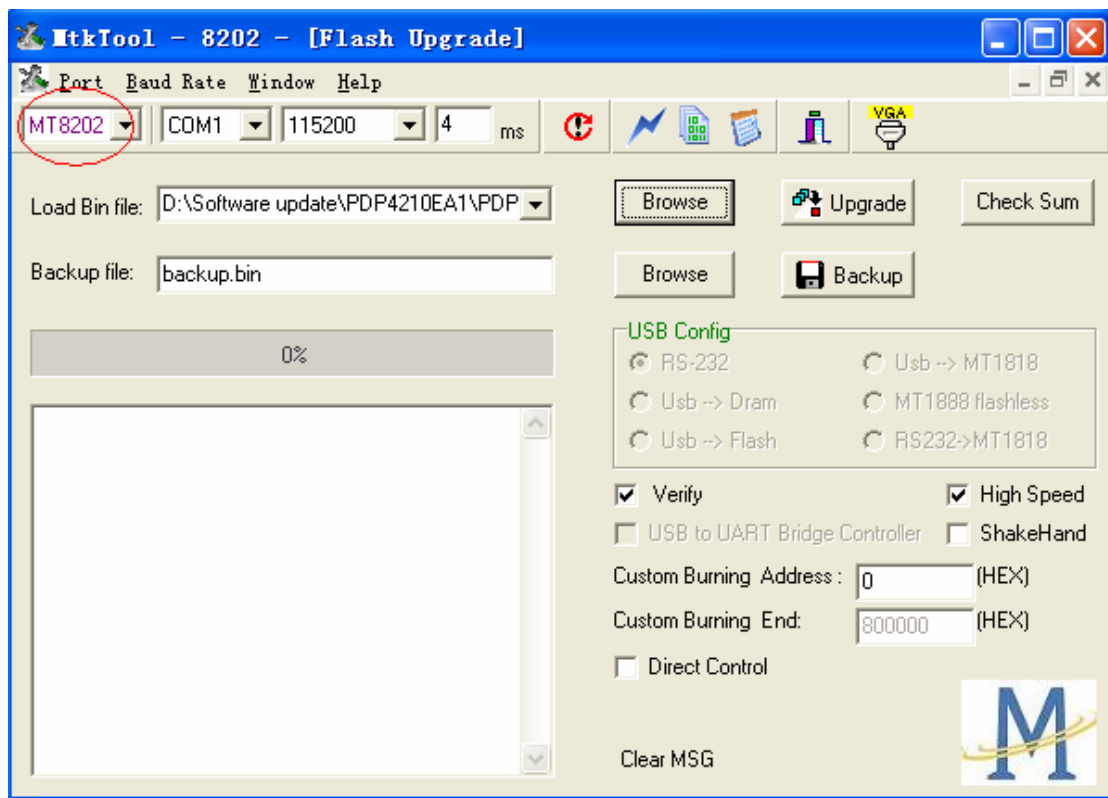
## Process of update MT8202

### Preparing :

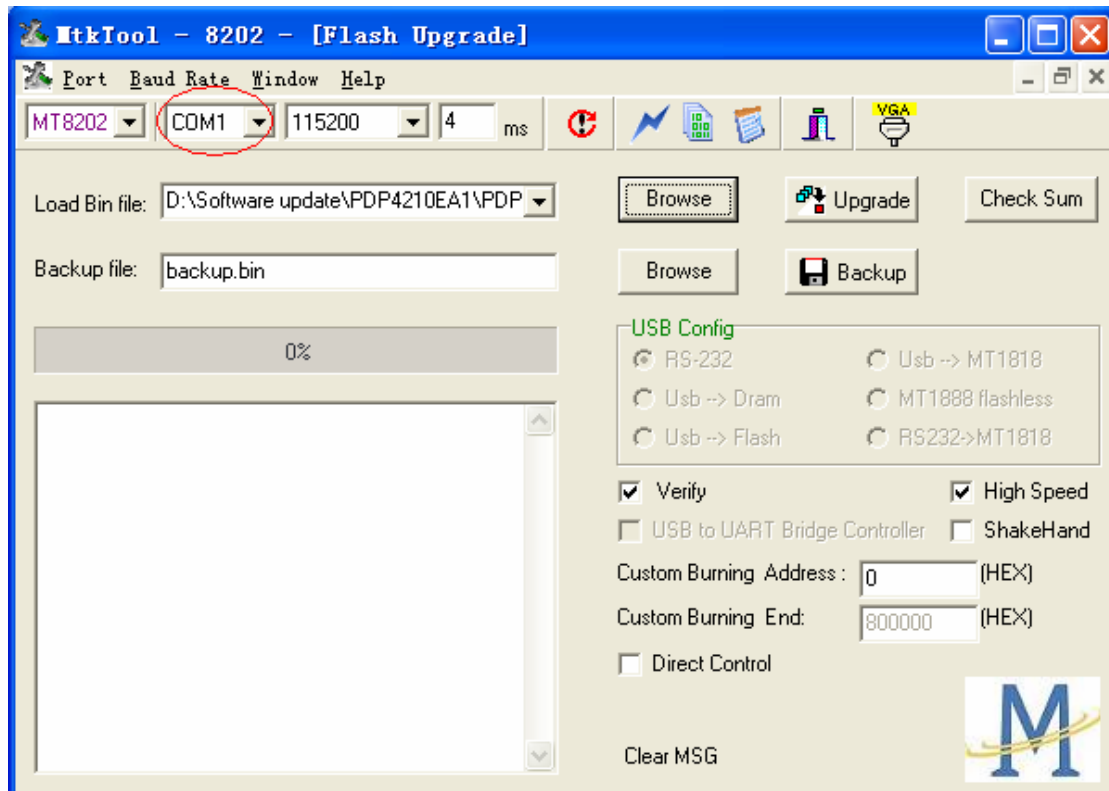
1. Connect **RS232-VGA download line**, One connector is connected to **VGA connect port of Plasma TV** ,while another side is connected to PC COM port.
2. Store the MtkTool into the PC .

### Downloading :

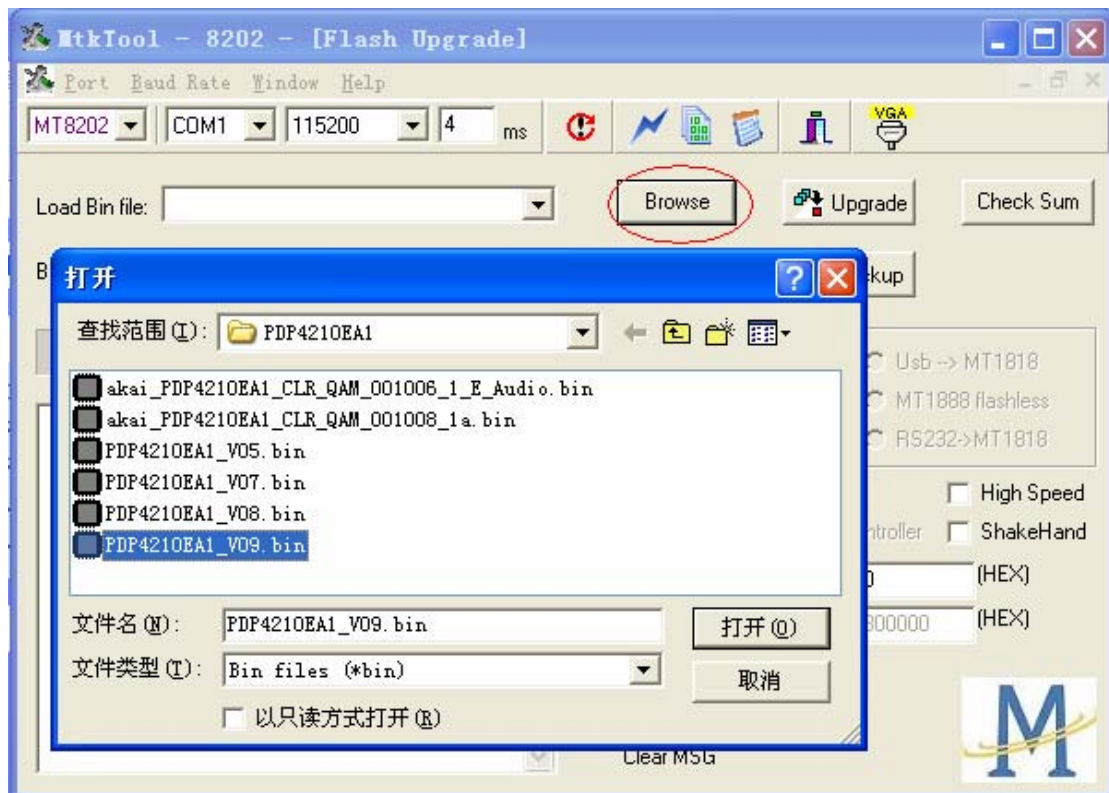
3. Turn on AC power switch of the Plasma TV and then press the button “standby” of the remote control . The image could be found on the screen of the Plasma TV while the color of the power indicator is green . (the mode of the Plasma TV will be standby mode if after turn on the main power switch only . )
4. Execute MTKtool and select the chipset as MT8202. (the software of MTKtool will be sent to your side)



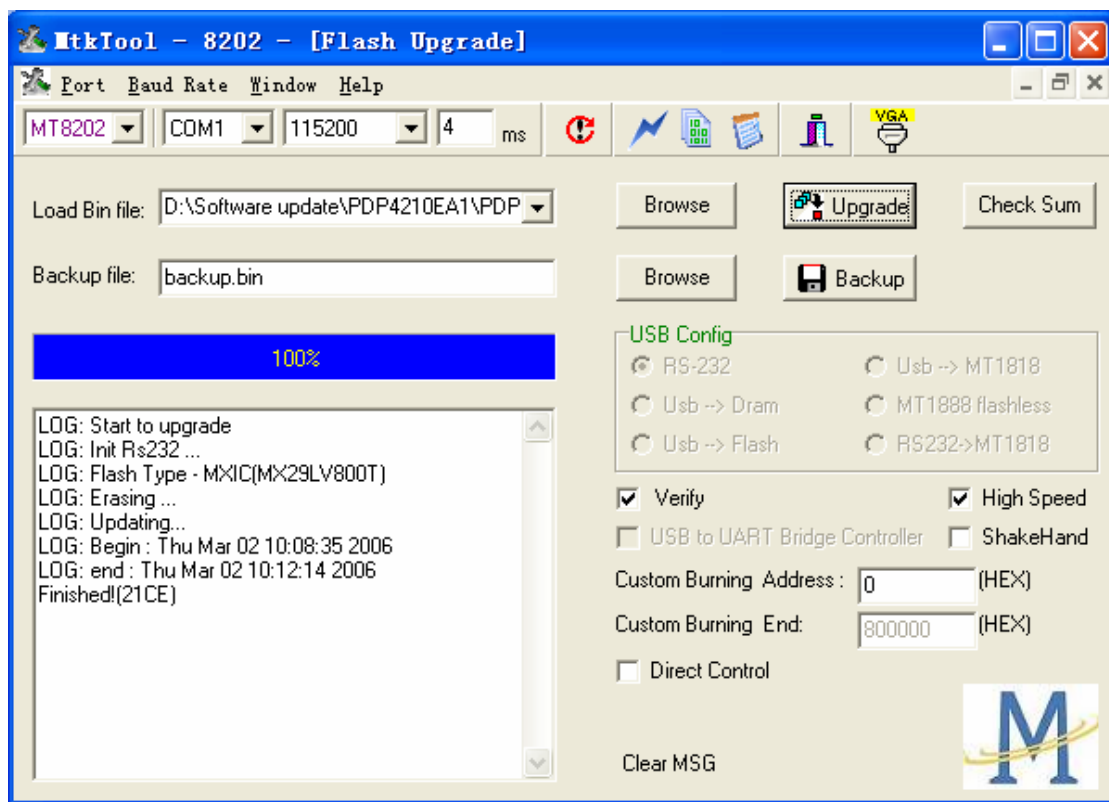
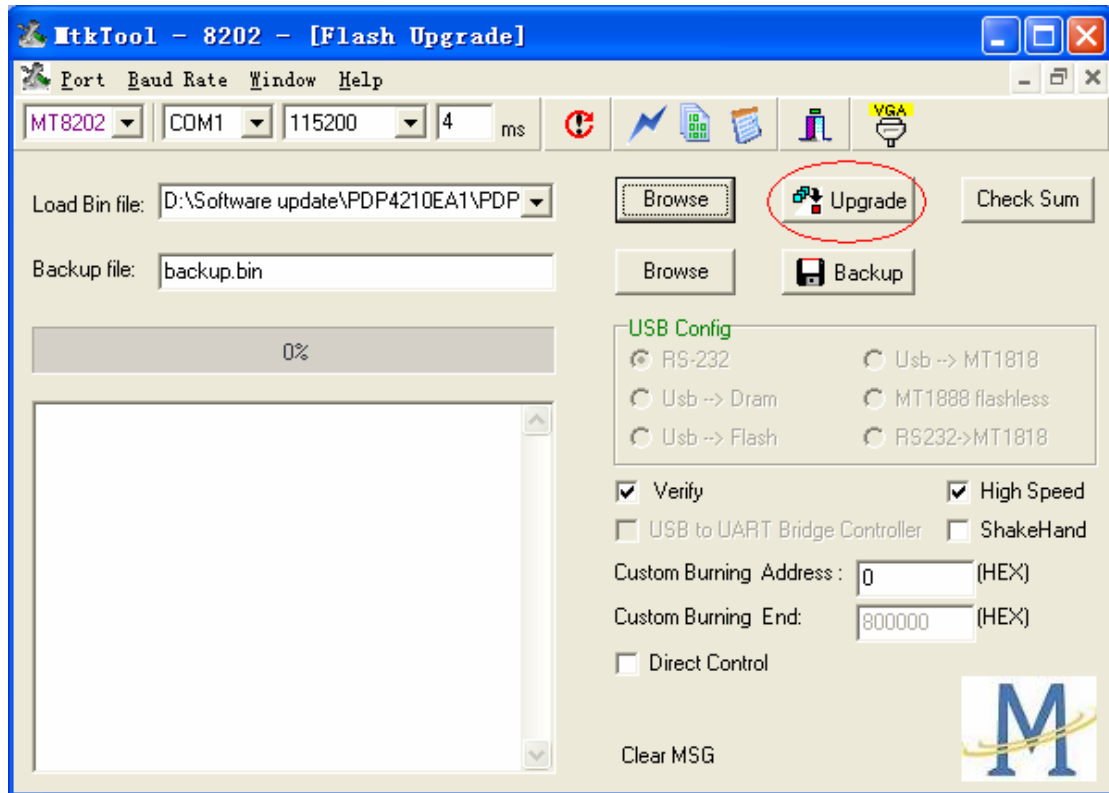
5. Select current COM port. (please try to check the COM port of your PC).



6. Choose the bit rate as 115200.
7. Select the update binary by pressing browse button. For example, the binary file name is PDP4210EA1\_V09.bin. (this update firmware will be sent to your side)



8. Press Upgrade button and start update process.



9. The update process is successful as the progress bar is 100%. After the update process is ok,

turn off power and wait indicator light is off. Turn on power and TV can work.

## Checking

It is needed to check the version of the firmware for MT8202 which has been download into the Plasma TV .

Press Menu button of the remote control, following input “8202” of the remote control and OSD menu for Factory Setting is appeared on the screen .

Use the remote control and select the mode of Firmware Version and then enter the mode of Firmware Version . It is easy to be found the version of the current firmware for MT8202 is as the following : “Factory ID : PDP4210EA1\_VXX ”

